WP 2 Summary Report

INCLAVI (INCLUSIVE AVIATION)

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Prepared by Breda University of Applied Sciences

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Public summary in project languages:

English: This deliverable presents the summary results of an extensive research of aviation stakeholders and education and training providers, on challenges that passengers with reduced mobility (PRMs) face during their customer journey. It also presents a proposed approach and curriculum oriented to staff in the aviation and travel industry, to address these constraints.

Dutch: Dit rapport presenteert de samenvattende resultaten van een uitgebreid onderzoek onder personeel en leidinggevenden in de luchtvaart en bij opleidings- en trainingsinstituten, naar ervaringen van passagiers met beperkte mobiliteit (PRM's) gedurende hun vliegreis.
Ook worden een curriculum en een trainingsmethode aangereikt, gericht op personeel in de luchtvaart- en reisindustrie, om deze uitdagingen aan te pakken.

Finnish: Tämä tuotos esittelee ilmailualan sidosryhmien sekä koulutus- ja koulutustarjoajien tutkimuksestulokset, missä focusoidaan haasteisiin, joita liikuntarajoitteiset matkustajat kohtaavat matkansa aikana. Tuloksissa esitetään myös ehdotettu lähestymistapa ja opetussuunnitelma, joka on suunnattu lento- ja matkailualan henkilöstölle näiden rajoitteiden korjaamiseksi.

Turkish: Bu çıktı, havacılık paydaşları ile bu alandaki eğitim ve öğretim sağlayıcılarının, hareket kabiliyeti kısıtlı (PRM'ler) yolcuların müşteri yolculukları sırasında karşılaştıkları zorluklara ilişkin kapsamlı bir araştırmanın özet sonuçlarını sunmaktadır.
Ayrıca bu kısıtlamaları ele almak üzere havacılık ve seyahat endüstrisindeki personele özel bir yaklaşım ve müfredat önerisi sunmaktadır.

Spanish: Este informe presenta el resumen de los resultados de una extensa investigación de las partes interesadas de la aviación y los proveedores de educación y capacitación sobre los desafíos que enfrentan los pasajeros con movilidad reducida (PMR) durante su viaje como cliente. También presenta una propuesta de enfoque y plan de estudios orientado al personal de la industria de la aviación y los viajes, para abordar estas limitaciones.

Executive Summary

This document is the first deliverable document related to Work Package 2 of the Inclavi project. The overall objective of this work package is to *develop policy recommendations for the air transport sector and relevant EU disability initiatives* and this report provides the foundation for WP3 (Module and Training Development and Piloting) by providing recommendations for the creation of training modules.
The recommendations provided in this document are based on:

- *an extensive review of the existing barriers that Passengers with Reduced Mobility (PRMs) face* as part of their passenger journey and
- *the existing training in the industry, Higher Education Institutes (HEI) and Technical Vocational Education and Training (TVET)* that enable aviation professionals with skills required to work with PRMs.

The aims of this work package are in accordance with the project description, serving to:

1. Gather latest insights into the current state of affairs in the training and education of aviation professionals, both in the industry, HEI and TVET, i.e. the scope and nature of contents used to address the topics of inclusivity and accessibility, the methods and pedagogical approaches, the digitalisation of education.
2. Gather latest insights into the current state of affairs in the aviation industry from the point of view of accessible travel, i.e. it is standards, actual practices, development needs, existing and in-the-making solutions, stakeholders,' and users' insights.
3. Identify skills mismatches that will form the basis for the creation of training modules for Inclavi curriculum

This deliverable contains a summary of the output generated in Work Package 2. It is based on data collected during the first year of implementation of Inclavi and presented in two milestone reports: a report on **Stakeholder and User Insights** and a second report on **Education and Training.** For more detailed information on the background and methods used for data collection, please refer to these two milestone reports, which are annexed to this summary (annex 1, 2).

The summary report gives key findings and components that allow for the design of a training curriculum targeting staff in the aviation and tourism industry working with PRMs. It is divided into 5 chapters. Chapter one identifies training needs, based on the two milestones reports mentioned above, corresponding to **skills gaps** that could be addressed by training of staff.

Chapter two presents a **typology of learners** of the Inclavi curriculum is presented. The selection of 18 occupations and related learners' profiles is the result of an analysis of the relevant **touchpoints** of the PRM customer journey, and the **priority** occupations of personnel interacting with PRMs during these touchpoints.

Chapter three includes an overview of a proposed **curriculum structure** and initial ideas about **learning outcomes** and **contents of modules**. The proposed curriculum structure is based on agreed conventions (such as the ECAC 30, annex 5G curriculum), but in addition suggests addressing specific **skills gaps** as identified in our data collection and summarized in chapter one.

Chapter 4 follows with a proposed pedagogical framework through a number of proposed **Inclavi learning routes** based on **0,5 ECTS micro-credentials units,** for selected **occupations.** Not all content developed in the Inclavi curriculum is relevant to all learners and some content is being developed already in in-company courses offered at airports and airlines. Therefore we propose an initial set of **4 learning routes,** which could be adjusted and extended when further developing the Inclavi curriculum.

Chapter 5 provides conclusions and some recommendations on the delivery methods of teaching and learning, which should allow for an elevated level of uptake and successful completion of the various learning components developed in the further stages of the Inclavi project.

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Abbreviations

ENAT	European Network for Accessible Tourism
EC	European Commission
ECAC	European Civil Aviation Conference
EFQ	European Framework of Qualifications
ESCO	European Skills, Competences, Qualifications and Occupations
EU	European Union
HEI	Higher Education Institution
IATA	International Air Transport Association
INCLAVI	Inclusive Aviation
NGO	Non-Governmental Organisation
PRM	Passengers with Reduced Mobility
PSAR	Passengers with Specific Access Requirements
TOT	Training of Trainers
TVET	Technical Vocational Education and Training

1 Training needs emerging from WP2 analysis

Inclavi document "Milestone 10 – Stakeholder and user insights" (annex 2) includes extensive insights into the passenger journey of PRMs, reporting the results of:

- A literature study on the passenger journey of PRMs including peer reviewed academic papers in the domain of accessibility and inclusivity of air travel
- Interviews conducted with experts, focusing on the passenger journey of PRMs
- Interviews conducted with PRMs, investigating their personal experience along the entire passenger journey.

Embracing the concept of data triangulation, insights from these three perspectives have been analysed and interpreted. The aim is to identify training needs (staff working in tourism and aviation currently appearing as not adequately satisfied. Addressing those training needs would contribute to improve the quality and the satisfaction of PRMs' travel experience. Below the identified training needs are presented, based on the 6 phases of the passengers' journey used as a framework in M10.

Figure 1. Passengers Journey. Author's elaboration based on IATA (2022, p. 19).

Phase 1: Purchase/booking

Training needs in this phase concern the necessity to strengthen, improve and consolidate the following elements:

- Knowledge and familiarity with laws, regulations and ethical practices concerning the provision of services to PRMs
- Awareness and knowledge concerning the existence of diverse types of disabilities and the different implications they have in terms of passengers needs
- Communication skills to better and emphatically understand the need of PRMs
- Ability to respectfully manage expectations, informing about the available possibilities, clarifying unrealistic expectations, and managing objections.
- Communication and consultation skills to better communicate and instruct PRMs about their rights, available services, options, and possibilities
- Proactivity to ensure excellent customer service, being able to offer the right option or solution, overcoming the lack of knowledge/awareness of PRMs
- Knowledge and familiarity with the accessibility features and interphase of online booking system and the related available options and procedures for PRMs'
- Handling of sensitive information, balancing the need for detailed information with the respect of passengers' privacy
- Ability to provide emotional support and understanding, recognizing, and addressing emotional vulnerabilities and anxieties.

Phase 2: Prepare to travel

Training needs in this phase concern the necessity to strengthen, improve and consolidate the following elements:

- Knowledge on how to handle travel preparatory requests concerning special needs regarding, for example, service animals, dietary restrictions, allergies, medical conditions, wheelchairs, and mobility devices
- Awareness and knowledge concerning the existence of diverse types of disabilities and the different implications they have in terms of passengers needs
- Ability to provide emotional support and understanding, recognizing, and addressing emotional vulnerabilities and anxieties regarding unforeseen events during travel preparation.
- Communication skills to better and emphatically understand the needs of PRMs, reducing the need for prolonged interactions through calls and emails
- Ability to respectfully manage expectations, informing about the available possibilities, clarifying unrealistic expectations, and managing objections
- Handling of sensitive information, balancing the need for detailed information regarding PRMs' health, independence status and equipment needs, with the respect of passengers' privacy.

Phase 3: Mobility to the airport

Training needs in this phase concern the necessity to strengthen, improve and consolidate the following elements:

- Understanding the concept of Multimodal Mobility, to promote an effective integration of air travel within multimodal mobility chains for accessible transport
- Knowledge of the availability and the location of accessibility features and assistance services, including escalators, elevators, and moving aids
- Knowledge on how to handle requests concerning special needs regarding, for example, sensory disorders, service animals, wheelchairs, and mobility devices
- Communication skills to better and emphatically understand the need of PRMs
- Ability to provide emotional support and understanding, recognizing, and addressing emotional vulnerabilities and anxieties
- Awareness and understanding concerning the importance of clear signage and information for passengers, including directions and walking times
- Awareness of the level of interconnectedness and interface of public transport and airport facilities
- Proactivity to ensure excellent customer service, being able to offer the right option or solution, overcoming the lack of knowledge/awareness of PRMs.

Phase 4: Airport experience

Training needs in this phase concern the necessity to strengthen, improve and consolidate the following elements:

- Knowledge on how to handle special needs regarding, for example, service animals, medical conditions, wheelchairs, and mobility devices

- Awareness and knowledge concerning the existence of several types of disabilities and the different implications they have in terms of passengers needs and requirements
- Ability to provide emotional support and understanding, recognizing, and addressing emotional vulnerabilities and anxieties regarding regular procedures and unforeseen events
- Communication skills to better and emphatically understand the needs of PRMs, particularly for passengers with hearing, visual, or cognitive impairments
- Technical knowledge and expertise for handling special equipment and personal aids
- Cultural awareness and sensitivity, to being able to assist passengers from diverse backgrounds effectively
- Stress and anxiety management, ability to provide emotional support and understanding, recognizing, and addressing emotional vulnerabilities and anxieties, especially during critical phases like security checks and boarding
- Organizational skills and resource management, to manage unpredictable peaks of demand for special assistance and to coordinate the operations of different service providers
- Handling of sensitive information, balancing the need for detailed information regarding PRMs' medical conditions and equipment needs, with the respect of passengers' privacy
- Knowledge and familiarity with laws, regulations and ethical practices concerning the provision of services to PRMs
- Knowledge and practical skills regarding emergency response and safety procedures tailored to passengers with reduced mobility
- Knowledge of the availability and the location of accessibility features and assistance services, including escalators, elevators, and moving aids.
- Knowledge and expertise concerning inclusive and accessible design of infrastructure and services
- Data management skills and expertise, to ensure that available information is used to ensure customer satisfaction for PRMs.
- Customer service and hospitality skills

Phase 5: In-flight experience

Training needs in this phase concern the necessity to strengthen, improve and consolidate the following elements:

- Awareness and knowledge concerning the existence of several types of disabilities and the different implications they have in terms of passengers needs
- Ability and expertise on identifying diverse types of disabilities while having limited or no information, especially concerning non-visible disabilities
- Ability to provide emotional support and understanding, recognizing, and addressing emotional vulnerabilities and anxieties regarding regular procedures and unforeseen events
- Communication skills to better and emphatically understand the needs of PRMs, particularly for passengers with hearing, visual, or cognitive impairments
- Stress and anxiety management, ability to provide emotional support and understanding, recognizing, and addressing emotional vulnerabilities and anxieties
- Knowledge and practical skills regarding emergency response and safety procedures tailored to passengers with reduced mobility

- Knowledge of the availability and the location of on-board accessibility features
- Practical skills and expertise on how to safely transfer passengers between wheelchairs, aisle chairs, and seats.
- Knowledge on how to handle special needs regarding, for example, service animals, dietary restrictions, medical conditions, wheelchairs, and mobility devices
- Cultural awareness and sensitivity, to being able to assist passengers from diverse backgrounds effectively
- Customer service and hospitality skills

Phase 6: Arrival and on-trip

Training needs in this phase concern the necessity to strengthen, improve and consolidate the following elements:

- Awareness and knowledge concerning the existence of several types of disabilities and the different implications they have in terms of passengers needs
- Ability and expertise on identifying several types of disabilities while having limited or no information, especially concerning non-visible disabilities
- Ability to provide emotional support and understanding, recognizing, and addressing emotional vulnerabilities and anxieties regarding regular procedures and unforeseen events
- Communication skills to better and emphatically understand the needs of PRMs, particularly for passengers with hearing, visual, or cognitive impairments
- Stress and anxiety management, ability to provide emotional support and understanding, recognizing, and addressing emotional vulnerabilities and anxieties
- Technical knowledge and expertise for handling special equipment and personal aids
- Knowledge and practical skills regarding emergency response and safety procedures tailored to passengers with reduced mobility
- Understanding the concept of Multimodal Mobility, to promote an effective integration of air travel within multimodal mobility chains for accessible transport.
- Knowledge of the availability and the location of accessibility features and assistance services, including escalators, elevators, and moving aids.

While Milestone M10 contributed to a better understanding of the passenger journey, milestone M9 focused on gathering insights from the perspective of staff working in tourism and aviation, and their perception of their current level of training on accessibility and inclusivity aspects. This double perspective was then used to envision a curriculum structure and preferable pedagogic approaches for the development of the Inclavi training. Specifically, the results of a survey among airports and airline staff showed that respondents:

- Perceive themselves as less confident in non-verbal communication, compared to written or oral communication.
- Even when they see themselves as able to understand the needs of PRMs, they are less confident when it comes to find information and workable solutions for PRMs' needs.
- Even when they see themselves as able to understand the needs of passengers with cognitive, visual, or hearing impairments, they are less confident when it comes to finding information and workable solutions for their needs.

The above-mentioned insights, together with the large amount of data gathered and presented in the milestones' documents M9 and M10 have been taken into consideration to envision a curriculum structure and a preferable pedagogic approach for the development of the Inclavi training platform. From the large amount of data gathered and analysed, a common theme emerges: ***the necessity of practical, comprehensive, and regularly updated training, utilizing various delivery modes, engaging real-world scenarios, and involving stakeholders, including PRMs, to ensure a holistic and adaptable learning experience.***

2 Typology of learners

2.1. Priority occupations and learners

Based on the airport and airline touchpoints identified in Chapter 1, there are 4 **categories of learners** related to the PRM customer journey for whom training appears to be relevant. These include a total of **18 (groups of) occupations**[1] classified in the structure of European Skills, Competences, Qualifications and Occupations (ESCO).

1. Managers, professionals (categories 1 and 2 in ESCO). The first type of learners relates to **6 occupations** in management and professionals related to the customer journey at tour operators, airports, and aviation:
    a. 1324.1 **Airport directors**
    b. 1324.2 **Air traffic managers**
    c. 1439.7 **Tour operator managers**
    d. 1420.4 **Shop manager**
    e. 2320.1.8 **Cabin Crew instructor**
    f. 2320.1.2 **Air traffic instructor**
2. Technicians and associate professionals (category 3 ESCO). The second set of learners relates to **5 occupations**, technicians and associate professionals that are directly or indirectly connected to the customer journey of PRMs at various levels
    a. 3153.2 **Aircraft pilots**
    b. 3154.3 **Flight operations officers**
    c. 3154.1.3 **Airport operations officers**
    d. 3351 **Customs and border inspectors**
    e. 3119.3 **Aviation safety officers**
3. Clerical support workers, service, and sales workers (categories 4 and 5 ESCO). The third subset of learners relates to 4 categories of workers that directly interact with PRM passengers in various stages of their customer journey.
    a. 4221 **Travel consultants and clerks**
    b. 5111 **Travel attendants and travel stewards**
    c. 5414.1.1 **Airport security officers**
    d. 522 **Shop salespersons**
4. Operators, elementary occupations (Categories 8 and 9 ESCO) The last subset of learners relates to some staff that works in operations and elementary occupations, and connects to PRM passengers from this perspective.
    a. 9333.1 **Airport baggage handlers**
    b. 8322.4 **Parking valets**

2.2. Typology of learners

[1] Annex 1 to this summary

The classification as used by ESCO allows for the identification of skills gaps define a typology of learners in each of these 4 categories.

Type 1A: Managers, professionals, and trainers

The category of **managers and professionals** is the first type of Inclavi learners. These professionals should be aware of PRM issues at a **strategic level**. They are usually in the position to take decisions on strategies and operations, as well as resources to assure a well designed PRM customer journey. Training components for these occupations should thus include legal, generic awareness and knowledge components. It would most probably be less related to practical and hands on training related to communication or technical skills.

Type 1B: Instructors and trainers

It is different for staff working as **instructors / trainers**. People in these occupations are transferring skills and knowledge to operating staff such as flight attendants or travel consultants. Therefore, this is seen as a separate category of learners. For this type of learners, a pre-determined **Train-Of-Trainer** (T-O-T) track of modules should be composed. The contents of this track would relate to the type of staff they are instructing for example if the learner is a **cabin crew** instructor, the T-O-T would zoom into the skillset of flight attendants. If the learner is an air traffic instructor, it might include more technical components.

Type 2: Technicians, associate professionals

The second category of learners relates to a series of middle management occupations that operate at the airport or in airlines and may have direct interaction with PRMs, but most probably will be leading a team of support workers that will interact more frequently with PRMs. For this category of learners, a **flexible modular** learning route could be developed. Learners could enter into menu of choices where they select modules that could relate to legal, strategic issues at airport level (see category 1), but also include more hands-on modules related to technical or communication skills.
For some of the occupations in this category, a more predetermined set of compulsory modules could be included. For example: for all customs and border inspectors, basic communication skills with distinct categories of PRMs could be a compulsory item.

Type 3: Clerical support workers, service, and sales workers

This subset of learners would include most likely and ideally the largest number of learners of the Inclavi platform. These occupations are the ones most in touch with PRMs, facing the most direct challenges in assuring that PRMs feel comfortable and safe. The training module related to this group of learners should be practical, include visual instructions and tutorials, and in multiple languages. At the same time, these are the occupations that are time constrained. Delivery methods of these modules should be streamlined and easy, and include online as well as practical, real-life instructions. Learning routes could be individualized, but include some basic components for all learners such as:

- Communication skills with various categories of PRMs;
- Conflict avoidance skills/ stress relief skills;
- Basic technical skills;
- Helping PRMs in finding information;

- Etc.

Type 4: Operators and elementary occupations

This last subset of learners relates to **parking valets and airport baggage handlers**. Staff working in these occupations could receive a fixed number of practical modules that allow them to answer basic questions of PRMs and handle equipment and tools.

3 Proposed Curriculum Structure

3.1. Introduction

As indicated in our research, the aviation and airlines industry organized in the European Civil Aviation Conference (ECAC), has developed, and recommended to a large level of detail, a curriculum for training of staff related to PRMs. This provides a good starting point for the development of the Inclavi curriculum modules. The ECAC recommended curriculum is built up into three modules, of which the first one is proposed for all staff connected to PRMs, and modules 2 and 3 are seen as optional for a selected number of occupations, such as flight attendants.

However, the ECAC curriculum is not worked out into detailed content and methods. Also, it does not cover some areas that are seen by PRMs as crucial skills gaps, during their customer journey. The proposed curriculum by Inclavi, addresses this content and pedagogical gap. Based on the input from PRMs and airline and aviation staff obtained through conducting the Inclavi's primary research, a more comprehensive module structure is proposed in this chapter. This structure will be used as a core framework for the design of a total number of at least 40 content modules that can be linked to different typologies of learners, as described in the previous chapter.

3.2. Curriculum structure

Table 1 below presents the proposed curriculum structure for Inclavi is presented. The described domains of learning are based on inputs from the ECAC curriculum, enriched with inputs and opinions from experts and PRMs that have been collected during the interviews and surveys that were conducted in the research for Work Package 2..

Table 1: Inclavi Curriculum

Domain of learning	Area of learning	Description of content / intended learning outcomes
1: Skills and knowledge development	1.1 Legal and Ethical Considerations	Familiarizing with international and local regulations, and ethical practices in serving PRMs.
	1.2 Sensitivity Training	Developing empathy/understanding for passengers with diverse needs.
	1.3 Communication **Strategies**	Tailoring strategic and consistent communication for different disability types.
	1.4 Communication **Skills**	Enhancing verbal and non-verbal communication for effective interaction with PRMs.
	1.5 Emergency Response	Training for emergency situations involving PRMs.
2: Awareness of Reduced Mobility types	2.1 Understanding Various Mobility Restrictions in Air Travel	Common disabilities affecting aviation mobility (e.g., mobility impairments, visual and hearing impairments).
	2.2 Passenger Profiles	Create awareness of passenger profiles and specific requirements (temporary disabilities, permanent disabilities, hidden disabilities, service dogs).
	2.3 Assisting Techniques	Assisting passengers with various mobility aids and devices.
3: Airport Navigation and Assistance	3.1 Airport Layout and Facilities	Understanding the layout of airports and accessibility features.
	3.2 Departure and Arrival Procedures	Assisting passengers through check-in, security, and boarding processes.
	3.3 Passenger Escort Techniques	Safely guiding passengers through the airport, including embarking, and disembarking the aircraft.
4: In-Flight Service and Comfort	4.1 Aircraft Accessibility	Understanding the design and features of accessible aircraft.
	4.2 Seating Arrangements	Allocating suitable seats and ensuring comfort for passengers with reduced mobility.
	4.3 Onboard Assistance	Providing support during boarding, in-flight, and disembarking.
	4.4 Emergency Procedures	Addressing emergency situations and evacuation for PRMs.
5: Customer Service Excellence	5.1 Quality Customer Service	Focusing on exceeding customer expectations and ensuring a positive experience.
	5.2 Feedback / Conflict Resolution	Developing skills to manage feedback / resolve conflicts with passengers.
6: ALL DOMAINS (P)	6.1 Case Studies 6.2 interactive exercises	Analysing real-life scenarios and industry best practices on PRM assistance.

The structure allows for developing a series of modules that can be delivered to airport, aviation, and tour-operating industry in a flexible manner, for different learner typologies and at distinct levels of the European Framework of Qualifications (EFQ). For each of the domains described above an initial description of content is presented below.

3.3. Initial content of modules

The content of the curriculum is delivered in 60 modules, 3 case studies and 3 interactive exercises, structured in a logical manner, per domain as follows:

Domain 1: Skills and knowledge development

1.1. Legal and ethical considerations

A basic module in which the key legal frameworks that apply to PRMs in aviation are explained. This module is compulsory for all staff that engages with PRMs, at all levels. It will be offered at a basic level (EFQ 5) and a more advanced level (EFQ 6).

1.1.1: Legal and ethical considerations basic (0,5 ECTS, EFQ 5)

1.1.2: Legal and ethical considerations advanced (0,5 ECTS, EFQ 6)

1.2 Sensitivity training

All learners should also receive the basic training on empathic skills, on how to recognize, understand, feel, and respond with empathy to PRMs. The advanced level training is compulsory for some categories of customer facing staff, whereas this could be optional for others such as managers and staff in operations.

1.2.1: Sensitivity training basic (0,5 ECTS, EFQ 5)

1.2.2: Sensitivity training advanced (0,5 ECTS, EFQ 6)

1.3 Communication strategies

The modules related to this area of learning are compulsory for the 1st type of learners (managers) and optional for the second and third types of learners. The area relates to strategic components of communication with PRMs during their complete passenger journey, from booking stage until the arrival of the passenger.

1.3.1: Consistent and clear communication with PRMs during their passenger journey (0,5 ECTS, EFQ 6)

1.3.2: Signing, wayfinding, visual and non-visual information for PRMs in airports and airplanes (0,5 ECTS, EFQ 6)

1.4 Communication skills

The area of communication skills is an extensive area of training, including a large set of modules specific for dealing with categories of PRMs. The first two modules are compulsory for all learners.

1.4.1.: Generic verbal and online communication with PRMs (0,5 ECTS, EFQ 5)

1.4.2.: Generic non-verbal communication with PRMs (0,5 ECTS, EFQ 5)

1.4.3.: Specific communication with hearing-impaired PRMs (0,5 ECTS, EFQ 6)

1.4.4.: Specific communication with sight-impaired PRMs (0,5 ECTS, EFQ 6)

1.4.5.: Specific communication with speech-impaired PRMs (0,5 ECTS, EFQ 6)

1.4.6.: Specific communication with wheelchair and walking-devices-dependent passengers (0,5 ECTS, EFQ 6)

1.4.7.: Specific communication with PRMs with hidden disabilities (0,5 ECTS, EFQ 6)

1.4.8.: Specific communication with PRMs with a service dog (0,5 ECTS, EFQ 6)

1.5 Emergency Response Procedures for PRMs

The first of these two modules deals with the issue of consistent and clear emergency and risk responses amongst different stakeholders in the passenger journey. This module is compulsory for the learner types 1 and 2. The second module is also compulsory for the learners from typology 3.

1.5.1.: Generic emergency and risk response procedures and consistent communication amongst stakeholders towards PRMs (0,5 ECTS, EFQ 5)

1.5.2.: Specific emergency procedures during all stages of the passenger journey towards PRMs advanced (0,5 ECTS, EFQ 6)

Domain 2: Awareness of reduced mobility types

2.1. Understanding various mobility restrictions in air travel

The generic module presents an overview of types of restrictions PRMs may face during their passenger journey. It is compulsory for learners of typology 2 and 3. The second module zooms into specific constraints during certain stages of the passenger journey and is optional.

2.1.1.: Generic overview of types of mobility restrictions and consequences (0,5 ECTS, EFQ 5)

2.1.2.: Mobility restrictions during all stages of the PRM passenger journey (0,5 ECTS, EFQ 5)

2.2. PRM Passenger profiles

These two modules introduce the definitions and various classifications of customer profiles used by IATA and other authorities, as well as the other typologies of passengers with mobility constraints, and also how to interact with these passengers.

2.2.1.: Introduction to IATA passenger profiles typologies (0,5 ECTS, EFQ 5)

2.2.2.: Typology of passenger profiles with non-PRM mobility constraints (0,5 ECTS, EFQ 5)

2.3. Assisting techniques

This area of learning zooms into specific techniques of assistance during the whole passenger journey, and is divided into six modules related to categories of PRMs. All are optional for learners.

2.3.1.: Assisting passengers with wheelchairs, walking devices (0,5 ECTS, EFQ 5)

2.3.2.: Assisting hearing-impaired passengers (0,5 ECTS, EFQ 5)

2.3.3.: Assisting sight-impaired passengers (0,5 ECTS, EFQ 5)

2.3.4.: Assisting speech-impaired passengers (0,5 ECTS, EFQ 5)

2.3.5.: Assisting passengers with hidden disabilities (0,5 ECTS, EFQ 5)

2.3.6.: Assisting passengers with a service dog (0,5 ECTS, EFQ 5)

Domain 3: Airport navigation and assistance

3.1 Airport Layout and Facilities

This area of learning includes three modules, related to a basic understanding of how the airport should ideally look like to support PRMs, including best practices. The second and third modules zoom into specific facilities such as shopping, payment transactions and sanitary services.

3.1.1.: Strategic decisions in layout of airport and facilities to support PRMs (0,5 ECTS, EFQ 6)

3.1.2.: Supporting PRMs in shopping and payment transactions (0,5 ECTS, EFQ 5)

3.1.3.: Supporting PRMs in sanitary and other personal services (0,5 ECTS, EFQ 5)

3.2 Departure and Arrival Procedures

This area develops content related to generic procedures (compulsory) and specific procedures for departure as well as arrival for categories of PRMs.

3.2.1.: Basic departure and arrival procedures (0,5 ECTS, EFQ 5)

3.2.2.: Check-in, security, and boarding procedures for categories of PRMs: wheelchair-dependent passengers, sight-impaired, hearing-impaired, speech-impaired passengers (0,5 ECTS, EFQ 6)

3.2.3.: Departure, security, and check-out arrival procedures for categories of PRMs: wheelchair-dependent passengers, sight-impaired, hearing-impaired, speech-impaired passengers (0,5 ECTS, EFQ 6)

3.2.4.: Check-in, security, and boarding procedures for special categories of PRMs: hidden disabilities, service dogs, other mobility constraints (0,5 ECTS, EFQ 6)

3.2.5.: Departure, security, check-out arrival procedures for special categories of PRMs: hidden disabilities, service dogs, other mobility constraints. (0,5 ECTS, EFQ 6)

3.3 Passenger Escort Techniques

This area develops content related to basic escorting techniques (compulsory) and specific procedures for departure as well as arrival for categories of PRMs.

3.3.1.: Basic PRM passenger escort techniques (0,5 ECTS, EFQ 5)

3.3.2.: Escorting techniques with wheelchair-dependent passengers, sight-impaired, hearing-impaired, speech-impaired passengers (0,5 ECTS, EFQ 6)

3.3.3.: Escorting techniques for passengers with hidden disabilities, with service dogs, or other mobility constraints (0,5 ECTS, EFQ 6)
3.3.4.: Advanced escorting techniques in emergency situations (0,5 ECTS, EFQ 6)

Domain 4: In-flight service and comfort

4.1 Aircraft Accessibility

This area develops content related to generic procedures (compulsory) and specific procedures for access to the aircraft, as well as for specific categories of PRMs.
4.1.1.: Basic PRM accessibility procedures for in-flight staff (0,5 ECTS, EFQ 5)
4.1.2.: Specific accessibility requirements for categories of PRMs: wheelchair-dependent passengers, sight-impaired, hearing-impaired, speech-impaired passengers (0,5 ECTS, EFQ 6)
4.1.3.: Specific accessibility requirements for categories of PRMs: hidden disabilities, service dogs, other mobility constraints (0,5 ECTS, EFQ 6)

4.2 Seating Arrangements

This area develops content related to generic procedures (compulsory) as well as specific procedures for seating, for specific categories of PRMs.
4.2.1.: Basic seating procedures for PRMs in airlines (0,5 ECTS, EFQ 5)
4.2.2.: Specific seating arrangements for categories of PRMs: wheelchair-dependent passengers, sight-impaired, hearing-impaired, speech-impaired passengers (0,5 ECTS, EFQ 6)
4.2.3.: Specific seating arrangements for categories of PRMs: hidden disabilities, service dogs, other mobility constraints (0,5 ECTS, EFQ 6)

4.3 Onboard Assistance

This area develops content related to onboard procedures (compulsory) as well as specific procedures for seating, for specific categories of PRMs.
4.3.1.: Basic onboard procedures for PRMs in airlines (0,5 ECTS, EFQ 5)
4.3.2.: Specific onboard assistance for categories of PRMs: wheelchair-dependent passengers, sight-impaired, hearing-impaired, speech-impaired passengers (0,5 ECTS, EFQ 6)
4.3.3.: Specific onboard assistance for categories of PRMs: hidden disabilities, service dogs, other mobility constraints (0,5 ECTS, EFQ 6)

4.4 Emergency Procedures on board

This area develops content related to emergency procedures (compulsory) as well as specific procedures, for specific categories of PRMs.
4.4.1.: Basic emergency procedures for PRMs in airlines (0,5 ECTS, EFQ 5)
4.3.2.: Specific emergency procedures for categories of PRMs: wheelchair-dependent passengers, sight-impaired, hearing-impaired, speech-impaired passengers (0,5 ECTS, EFQ 6)
4.3.3.: Specific emergency procedures for categories of PRMs: hidden disabilities, service dogs, other mobility constraints (0,5 ECTS, EFQ 6)

Domain 5: Customer service Excellence

5.1 Quality Customer Service

This area develops the basic principles of customer service (compulsory) as well as specific procedures for categories of PRMs.
5.1.1.: The principles of customer service for PRMs (0,5 ECTS, EFQ 5)

5.1.2.: Specific customer service for PRMs: wheelchair-dependent passengers, sight-impaired, hearing-impaired, speech-impaired passengers (0,5 ECTS, EFQ 6)

5.1.3.: Specific customer service for categories of PRMs: hidden disabilities, service dogs, other mobility constraints (0,5 ECTS, EFQ 6)

5.2 Feedback / Conflict Resolution

This area develops content related to feedback and specific modules on stress relief and conflict resolution for PRMs.

5.2.1.: Basic PRM customer feedback: how to respond to complaints (0,5 ECTS, EFQ 5)

5.2.2.: Taking away stress and enhancing PRM's travel comfort (0,5 ECTS, EFQ 6)

5.2.3.: Conflict management and resolution (0,5 ECTS, EFQ 6)

Domain 6: Case studies and interactive exercises

6.1 Case Studies (3 in total)

6.2 Interactive exercises (3 in total)

4 Pedagogical approach

PRMs encounter persistent challenges throughout their passenger journey. This issue primarily arises from the mismatch between the development of training curricula, content, and materials by airlines and the aviation industry, and the inadequacy of the delivery methods. The challenge is compounded by the limited time available for staff training, often resulting in current training sessions being hastily incorporated into their already busy schedules. This situation highlights the need for more effective and efficient training approaches that can be seamlessly integrated into the existing workflow of airline personnel to enhance the support provided to PRMs.

The curriculum should therefore focus on developing an innovative and inspiring **pedagogy of learning**, while potentially making use of existing content that has been developed by especially private training suppliers. This would mean that trainings do not follow a standardized approach, but use a set of **flexible adaptable strategies** that companies employ based on their specific requirements and industry dynamics.
In terms of training pedagogy, the incorporation of a variety of methods is crucial. This diversity ensures that the learning process is comprehensive and addresses various learning styles. The emphasis on flexibility is essential for accommodating the limited time available for staff training, making it easy for personnel to access the training materials at their convenience. Furthermore, a balanced combination of theory and practice ensures that the acquired knowledge is not only theoretical but also applicable in real-world scenarios, enhancing the effectiveness of the training programme.

The Inclavi curriculum as presented in Chapter 3 would be suitable for staff at levels of education starting from EFQ level 5, up to EFQ level 7. Within this range, the curriculum offers 4 types of learners the opportunity to develop knowledge, skills, and techniques to understand, communicate and support PRMs at basic or advanced level, according to their preferences.
The curriculum includes a total of 60 modules of 0,5 ECTS each. The structure would be suitable for 4 typologies of learners that have been identified in Chapter 1. These learners would all have to finalize a series of 10 compulsory modules, and next to this, can specialize in certain content areas in 5 domains. All learners will also need to take at least 2 modules of the Domain 6: Case studies and interactive exercises. All modules would be certified as micro-badges or micro-credentials, so the leaners can stack content and develop generic as well as specialized knowledge on certain domains or related to certain categories of PRMs. In this way, all learners of the platform are enabled to develop a personalized level and combination of knowledge and skills, combined with practical exercises.

In Annex 4, for two of the 5 domains, an example of a combination of compulsory, desirable and optional modules for groups of learners is presented. It becomes clear that all learners need to do several basic modules, and are recommended to take other modules.

5 Final recommendations

In this Chapter some final recommendations are presented for an attractive and effective delivery of the curriculum and modules described previously.

Combine knowledge with skills training

The curriculum includes a balance between transfer of knowledge on policies and procedures and the development of skills to assist PRMs, per category. Each of the modules will be delivered in a comparable manner, containing a theoretical with an instructional component, at least one exercise or interactive game, and an individual self assessment. Ideally, all **compulsory basic modules** as proposed in the five domains, would include video-instructions. Video-instructions as well as other enriching components, should be developed with AI-generated content, such as the platform veed[2].

Use practice-based learning

Next to the compulsory modules, that would contain video instructions, the optional modules could be enriched by using practice-based learning. This would lead to the development of a variety of online games, quizzes, exercises, roleplays, and simulations throughout the various modules. The content of these practice-based learning components could be developed in collaboration with PRMs, using their input (reference to real-life scenarios) through focus groups. Examples are educational materials for pregnant passengers, exercises for in-flight comfort, and learning related to initiatives like the Sunflower Badge for PRMs.

Start small, integrate learner feedback

The curriculum presented includes more components than those that can be developed throughout the project. The key recommendation therefore would be to start with the compulsory basic modules and then continuously expand the platform's content, to reach more individuals and offer multiple perspectives on communication and passenger needs. The first modules would need to be presented to aviation staff, incorporate their feedback as well as the feedback from PRM passengers, through focus groups and further interviews. This would ideally lead to a system for continuous stakeholder contributions and collaboration. This would also allow the training components to be updated and adapted to evolving regulations and technologies to ensure relevance.

Assure time- and place-independent learning

The curriculum should be developed in an online environment that is interactive and allows for **individual time-and place-independent** learning. Case studies and interactive exercises in domain 6, are preferably **group assignments**, in which learners have to work together to solve constraints and issues presented in the case or interactive session. This would thus require an online learning environment that allows for joint brainstorming and online team meetings. These components could also be developed in a life group setting.

[2] https://www.veed.io/tools/script-generator

Annex 1: Milestone Document 9

Training and Education Insights

INCLAVI (INCLUSIVE AVIATION)

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Prepared by Breda University of Applied Sciences

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Executive Summary

This document is the first milestone document related to the Work Package 2 of the INCLAVI project. The overall objective of this work package is to *develop policy recommendations for the air transport sector and relevant EU disability initiatives.*

These recommendations should be based on:

- *an extensive review of the existing barriers that PRMs face* as part of their passenger journey and
- *the existing training in the industry, HEI and VET* that enable aviation professionals with skills required to work with PRMs.

The aims of this work package are in accordance with the project description, serving to:

1. Gather latest insights into the current state of affairs in the training and education of aviation professionals, both in the industry, HEI and TVET, i.e. the scope and nature of contents used to address the topics of inclusivity and accessibility, the methods and pedagogical approaches, the digitalisation of education.
2. Gather latest insights into the current state of affairs in the aviation industry from the point of view of accessible travel, i.e. it is standards, actual practices, development needs, existing and in-the-making solutions, stakeholders,' and users' insights.
3. Identify skills mismatches that will form the basis for the creation of training modules for INCLAVI curriculum

In this first document the focus is on the second aim of the work package: the current state of affairs in the aviation industry related to accessible travel. The report is divided into 6 chapters. The introduction focuses on education and training needed in accessibility and PRM services in aviation. The next chapter describes the key regulations that will be the framework of analysis and proposed design of the learning platform. Chapter 3 summarizes an overview of offerings of **current education in accessibility** available in private training institutes and at the level of higher education (HEI) and technical vocational training (TVET) in the five countries of implementation of the project as well as across Europe. The overview is based on a document analysis and a review of various EU projects focusing on design and delivery of specialised trainings, such as the EU funded InTOUR project in which INCLAVI partner ENAT has participated.

In the following chapter (5), the results of **primary data** collected from staff and experts are presented. For this chapter two key methods were used:

- A survey distributed to learners in schools and staff in aviation from the five countries of project implementation (Turkey, Spain, Belgium, The Netherlands, and Finland). The staff survey generated 135 responses and the school survey 33 responses.
- Expert interviews conducted with educational experts who work with or for PRMs

The interview guides for these interviews as well as the overview of responses to the survey questionnaire are included in the annexes.

The final, 6th chapter contains an analysis of deficiencies in current trainings and a proposal of **topics to be included in training modules,** related to **occupations** that are connected to touchpoints in the PRM customer journey .

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Abbreviations

ENAT	European Network for Accessible Tourism
EC	European Commission
ECAC	European Civil Aviation Conference
EU	European Union
HEI	Higher Education Institution
IATA	International Air Transport Association
INCLAVI	Inclusive Aviation
NGO	Non-Governmental Organisation
PRM	Passengers with Reduced Mobility
PSAR	Passengers with Specific Access Requirements
TVET	Technical Vocational Education and Training

1 Accessibility in aviation and the need for continuous staff training

Passengers with reduced mobility (PRMs) interact with several diverse types of staff members during their customer journey when navigating through airports and airplanes[1]. Each of staff members working in these companies has different responsibilities and jobs, and they might have received different types of training.

In general, PRMs find traveling through an airport a stressful experience. Staff members might come across as not so helpful or even disrespectful, even if they are doing their best to help. [2] However, service failures often stem from poor or incomplete training. In addition to disrespectful treatment from staff, there are safety risks associated with staff assisting PRMs, especially those with complex mobility impairments. Risks are presented to both the staff member and the PRM (Duerstock, 2019). A typical action reported by staff as resulting in injury are transfers to and from the aisle chair and seat when staff may sustain back injuries. PRM passengers can suffer from falls, skin tears, and shoulder dislocations during transfers (Fadul et al., 2014).

Aisle chair transfers are usually performed by **ground staff** or a **third-party contractor**. However, in some cases flight attendants might help transfer disabled passengers, such as if they need to use the lavatory during their flight. Surveys conducted (Duerstock, 2019) about flight attendants experiences serving disabled passengers revealed that 52.4% of them have ever helped transfer a wheelchair user. Out of these flight attendants, 14% have injured themselves during a transfer, thus 1 in 10 flight attendants who transfer disabled passengers receive injuries from doing so. It should be noted that cabin crew are not allowed to manually lift PRM passengers in compliance with national and international health and safety regulations.

Most staff (Duerstock, 2019) receive yearly training on how to serve PRMs, but these trainings are short, and do not include practical components. **Flight attendants** note that they are extremely uncomfortable when having to assist PRMs, specifically in **emergencies** they would not feel prepared to help a multitude of PRMs. Other research (Bremer and Maertens, 2021) concludes that training of those specifically tasked with helping PRMs in situations where assistance is requested must also be **consistent and specific**. Training should also reach staff that **operate under third-party vendors** hired by airports. Even staff that has no task to support PRMs physically, especially in customer service, need a baseline understanding of all support that is needed (and not needed) by particular passengers.

When trying to understand **where** skills gaps occur most frequently, interesting research has been done. A voluntary survey was sent to an online community of PRMs regarding air travel, complaints targeted some key occupations such as:

[1] The passenger journey of a PRM traveller does not start at the airport, but the focus of INCLAVI is on the airport and airline operators that are included in this journey.

[2] As an example, PRMs when traveling with a companion have reported that frequently staff members automatically address the companion assuming that they are the caregiver of the person in the wheelchair.

- airplane and flight attendants
- airport security officers
- baggage handlers

Passengers report that **communication between staff** can be improved to help understand **vague instructions** or barriers to successful accommodation. A**irport supervisors** should be trained on **staff management for specific disability cases**. Ideally, they are advised in person upon hiring and are assessed annually on their **communication and human organization skills**. Additionally, all service staff, including **airport security officers**, should be trained **on various disabilities** and their requirements for service. Other recommendations given in previous research include:

- offer interactive, **module-style courses** upon hiring. This can provide a thorough knowledge base. Yearly assessments will ensure that service staff remain informed about various presentations of disabilities.
- Staff that **directly assists PRMs**, such as those who help passengers with mobility issues board the plane, should be trained equally on various **effects disabilities may have on travel**.
- **In-person training sessions** with **live demonstrations and practice** should be implemented to teach these specific staff members proper techniques in:
-
    - boarding,
    - off-loading,
    - seat transfers,
    - traversal through the airport (including through security).

- These training sessions should be held until the staff member is proficient at these techniques, as improper movement of a passenger with mobility assistance needs can cause injury and severe discomfort to both parties (Darcy, 2012).
- In-person training programs must follow **a specific script**, each staff member should demonstrate a **specific proficiency** before their training is complete, whether through a firsthand demonstration (in the case of transferring procedures) or through an online module which must be passed with a sufficient score.
- Any staff member that **may assist PRMs** should be better informed about the effects that disabilities may have on passengers through interactive modules and assessments.
- Supervisors should be trained and assessed on **their ability to manage their subordinates** to assist passengers.
- Staff members who directly assist PRMs should be given through **direct training and demonstrate proficiency in performing correct techniques**.

Eric Lipp (2015) confirms that training should focus on **“the essence of human interaction and how people will feel when traveling through a given country, city or town”.** Traveling by air is a complex

process for PRMs, as their passengers' journey is disseminated with a variety of barriers and challenges. The quality of service provided by airline and airport staff is a critical factor in determining their overall experience. Studies have highlighted the importance of training in improving the experiences of passengers with special accessibility needs (Chang & Chen, 2012; Major & Hubbard, 2019; Oostveen & Lehtonen, 2018; Poria et al., 2009; Prager, 2011).

Prager (2011) emphasizes the necessity of comprehensive training for all personnel involved in providing direct assistance to passengers with special accessibility needs, such as disabled passengers. This includes:

- **disability equality and awareness** training for airport staff who interact with the traveling public.
- increased understanding of **diverse types of accessibility needs**, disabilities, and appropriate interaction techniques.
- **Conversation techniques** with passengers.

Employees should undergo training upon recruitment and receive refresher courses as needed. Chang and Chen (2012) argue that employee training should be designed **according to job function requirements and legal obligations**. They propose a training program that covers:

- Legal responsibilities
- Barriers faced by disabled persons
- Principles of accessibility audits
- Information on various disabilities
- Skills for assisting disabled passengers
- Overseeing unexpected situations.

They further emphasize that airport operators and airline management should recognize the business value of catering to PRMs and the importance of training in fulfilling **legal responsibilities** and **meeting passenger needs**. Poria et al. (2009) highlighted how PRMs often face physical and social difficulties during air travel, including humiliation and physical suffering.

Though the **human factor** is an important one to improve the PRM customer journey, the interactive map (see annex 1) that was designed as part of the literature review for INCLAVI, shows that the human interaction with PRM cannot be isolated from other technological, digital, and systemic infrastructural deficiencies in the air travel supply chain. This means that staff training solutions to improve the customer journey can only work if the context (read: airports and airlines) in which these are offered is favourable for staff members to develop their skills.

2 Key regulations on aviation staff training in PRM: ECAC DOC 30

Under global regulations, all staff members who interact with passengers must have relevant knowledge and awareness regarding adequate accommodations and assistance for PRMs who require a certain level of support. Within the framework of this project, the most detailed and relevant current training guidelines as prescribed and developed in Europe for the training of airline and airport staff are the ECAC 30 guidelines (as included in annex 5G). The following is specified[3]:

I The Regulation sets out three levels of training obligations on airport staff or staff working for companies contracted by airport authorities. Under Article 11 of the Regulation airports must:

a. ensure that all their personnel, including those employed by any sub-contractor, providing direct assistance to disabled persons and persons with reduced mobility have knowledge of how to meet the needs of persons having various disabilities or mobility impairments;
b. provide disability-equality and disability-awareness training to all their personnel working at the airport who deal directly with the travelling public;
c. ensure that, upon recruitment, all new employees attend disability-related training and that personnel receive refresher training courses when appropriate."

II Travel agencies should ensure that their personnel in contact with persons with disabilities and PRMs also receive appropriate training on how to give practical assistance to persons with disabilities and PRMs and how to ask persons with disabilities and PRMs what assistance they need and how best to provide it.

III The training should be delivered in cooperation with disability organisations.

The annex 5G includes a detailed description of modules that should be taken by several levels of staff, working in airports. The guidelines make reference to groups of targeted learners, and minimal knowledge and skills to be addressed. However, unfortunately, there is no link between these guidelines and regular job classification systems such as ESCO.

In the following matrix, based on the ECAC DOC 30 annex 5G an overview is presented on the classification of learners and the type of knowledge and skills that they are supposed to develop to comply with the legal frameworks established. Based on this matrix, ECAC describes content in a set 3 modules that selected occupations should follow (see annex 4 to this document).

The table below has been elaborated based on Annex 5G of ECAC, including the key ESCO occupations that relate to each of the activities in the aviation supply chain. It is a good starting point for the comparison of skills and competencies that airport and aviation staff should deploy with the experiences of PRM passengers and to compare it against reality (chapter 5 and 6).

[3] See annex 2, for a comparison with US ACAA guidelines

Table 1: ECAC framework of learners and topics in staff training for PRM customer journey

Training areas / *Training* / *modules Target groups*		Legislation	Disability awareness	Equipment awareness	Job- related items and exercises	Kinetics of lifting	Test	First Aid
Module1	Check-in/gate agents	√	√	√	√		√	
	Security check *	√	√	√	√		√	
	Airport information *	√	√	√	√		√	
	Ticket offices *	√	√	√	√		√	
	Lost & found *							
	Border police *							
	Customs / immigration	√	√	√	√		√	
	Bar/rest./shops *	√	√	√			√	
	Parking agents *	√	√	√			√	
	Ramp agents *	√	√	√			√	
	Airport Management	√	√	√			√	
Modules 1+2	PRM assist. provider	√	√	√	√	√	√	√
	PRM project manager	√	√	√	√	√	√	√
Modules 1+3	Cabin crew *	√	√	√	√	√	√	
		√	√	√	√	√	√	

3 Current offerings of aviation staff training in PRM

3.1. Introduction

From the previous chapters it can be concluded that there are sufficient insights into the types of training that are needed for staff at airports and airlines, working across the PRM customer journey, suggesting who and in which priority areas needs to be trained.

Feedback from industry training experts shows that there might be no need to design new competency profiles or topic areas, as the current suppliers (especially the private training companies that are contracted to develop PRM training programmes in airports and airlines) have developed a variety of training offerings that are currently implemented.

On the other hand, from interviews with stakeholders and aviation experts, it has become clear that many trainings are not offered directly to all the aviation staff that is usually in contact with PRMs, or trainings are not delivered in an effective and accessible manner, not only in the European aviation sector. In large-scale research, the US Government Accountability Office gave useful recommendations when referring to training of staff (GAO, 2021). One of the key concerns raised is that airlines outsource passenger support services to private contractors as a method to control costs amid financial pressures and growing competition. This makes continuous training a necessity.

Within the context of the project, whereas it is assumed that aviation and airline PRM trainings as currently offered, should cover the areas and competencies as proposed by ECAC, these guidelines

cannot be enforced. Thus it is hard to evaluate if trainings are offered in a satisfactory manner. Based on the literature review, still the following questions remain unanswered:

- Should the **current areas of training and competencies** as prescribed in the ECAC modules, be complemented, and improved with areas of concern, which are currently not yet addressed?
- How could the current areas of training and competencies as prescribed in the ECAC modules, be **delivered to a larger number of learners and occupancies**?
- How could the current areas of training and competencies as prescribed in the ECAC modules be delivered to the learners indicated in a more direct and effective manner, to improve their proficiency?

In order to have an understanding of the current offering of training programmes (2023) related to PRM services, a benchmark analysis has been made in the framework of this report. An overview of the training offerings analyzed is presented in the annexes.

3.2. Private training suppliers

For the desk research of this topic, a total number of 24 private training suppliers were reviewed. Please refer to annex 5 for the overview. Of these suppliers:

- Two companies offer (3 to 5 days) multiple day courses in a train-the-trainer format on airports, to targeted PRM managers of airports and subcontracted parties. These are trainers who deliver the official modules specified in a 'crash course' format. There are initial courses of two-three days and ½ day or 1 day refresher courses offered. Usually, the trainings include video demonstrations.
- Though practical training is recommended it is not always included in the initial courses. Refresher courses do not include practical exercises.
- Many private training companies offer short (from a few hours to one day) courses targeting selected airline and airport staff. These could be ground handling staff or flight attendants who want to upskill themselves. These short courses are mostly online and do not include practical training.
- A third set of suppliers targets the tourism sector at large, with accessibility as a key focus. These trainings are usually offered by NGOs, some airports that have collaborated with PRM groups, or results of internationally funded projects such as the EU-funded project InTour. The courses do not target specifically the airport or aviation staff, but staff working in the tourism supply chain as a whole, including transportation companies, hotels, and tour operators mostly. Several best practices have published courses online such as the Accessibility Tick programme in New Zealand[4] Also APEC (2022) has published a useful overview of best practices in accessibility including great references to training materials.

[4] https://accessibilitytick.nz/wp-content/uploads/2021-09-Accessibility-Tick-Training-and-Partner-Programme-Catalogue-v4-4.pdf

While comparing and reviewing components of content, though companies officially indicate that the compulsory content as required by ECAC is delivered, one may ask if the final staff that has received the training and is working with PRMs has been able to show the required proficiencies on the job.

3.3. Higher Education Institutes

A report commissioned by the EC (Bekiaris, 2018), concluded that only one country in Europe has established a nationally recognised, obligatory course in accessible tourism for students of hospitality. In no other EU country there are obligatory components in HEI or TVET curricula to be found.
On a voluntary basis, some institutes offer short courses to their students. In the table under annex 6, an overview is presented of institutes of higher education that offer trainings related to accessibility in general or more specifically to the aviation and airline industry.

3.4. Technical and Vocational Education and Training

In the annex 7, an overview of TVET institutes in the partner countries that offer courses related to aviation can be found. In most of these countries, students in the TVET institutes work on airports and in airlines as interns during more than 6 months. AS they are treaties as employees during their internship, they should be trained just like other employees in PRM issues, according to agreed training protocols. In practice, these trainings are not always offered to interns, but only to senior customer facing staff. In some cases, extra training is offered to students who would like to specialize in certain elements of accessibility such as sign language.

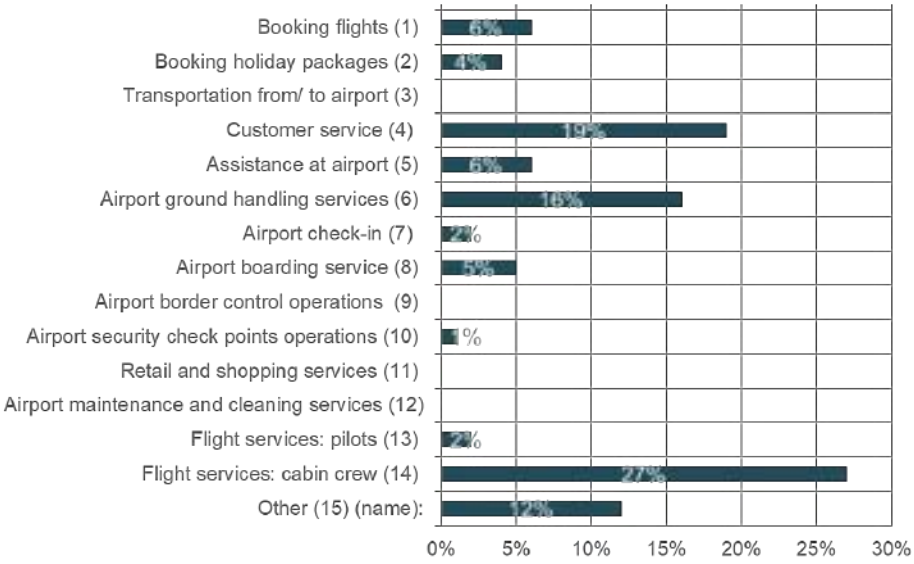
As a first conclusion it can be stated that during TVET education, the specific topic of PRM assistance is not included in curricula and only marginally offered to TVET students in practical training.

4 Aviation staff skills gaps: self-assessment survey

4.1. Introduction and methodology

In order to get a better understanding of the skills gaps of airport and aviation staff, when it comes to delivering services during the PRM customer journey, the INCLAVI project has opened a survey to aviation and airline staff in the 5 project countries of implementation: Finland, Spain, The Netherlands, Turkey, and Belgium. The survey targeted staff that actively engage with PRMs and was composed of a set of 19 questions to allow participants to self-assess their skills level in a series of generic communication and cross-cultural competencies as well as specific competencies when dealing with PRMs.

The overall survey was filled in by 129 respondents, divided into the following occupations:



Source: online survey INCLAVI 2023 (n=129)

4.2. Generic skills

When analyzing generic skills, several questions allowed participants to reflect on their communication and cross-cultural skills as can be seen below.

6. Please rate your current level of expertise in *communication* and *cross-cultural skills* in your own language, on a scale from 1 (no skills present) to 5 (expert)?

Number of respondents: 129

	6. Please rate your current level of expertise in communication and cross-cultural skills in your own language, on a scale from 1 (no skills present) to 5 (expert)?						
	1	2	3	4	5	Average	Median
Written communication skills	0.0%	0.8%	10.9%	36.4%	51.9%	4.4	5.0
Oral communication skills	0.0%	0.0%	7.0%	41.8%	51.2%	4.4	5.0
Non-verbal communication skills	0.8%	7.0%	14.8%	39.9%	37.5%	4.1	4.0
Ability to listen to others	0.0%	0.0%	3.1%	38.0%	58.9%	4.6	5.0
Understanding of different cultures	0.0%	0.8%	13.9%	31.8%	53.5%	4.4	5.0

Source: online survey INCLAVI 2023 (n=129)

Interestingly, 22,6% of respondents indicate a limited level of knowledge on **non-verbal communication skills.** Secondly, understanding diverse cultures is mentioned as an area where staff skills could be improved.

10. Please rate *your personal expertise* in the following skills on a scale from 1 (no skills present) to 5 (expert)?

Number of respondents: 129

	10. Please rate your personal expertise in the following skills on a scale from 1 (no skills present) to 5 (expert)?						
	1	2	3	4	5	Average	Median
Ability to understand special assistance needs of air travellers	0.8%	1.6%	9.4%	44.1%	44.1%	4.3	4.0
Ability to solve requests of air travellers with special assistance needs	2.3%	0.8%	20.3%	38.3%	38.3%	4.1	4.0
Ability to communicate with air travellers with special assistance needs	0.8%	0.8%	14.7%	40.3%	43.4%	4.2	4.0
Ability to find information for air travellers with special assistance needs	0.0%	9.5%	23.6%	29.1%	37.8%	4.0	4.0
Total	**1.0%**	**3.2%**	**17.0%**	**38.0%**	**40.9%**	**4.1**	**4.0**

Source: online survey INCLAVI 2023 (n=129)

The second question related to generic skills reveals that almost 10% of staff indicates not being able where to find information for PRMs in a satisfactory manner.

4.3. PRM specific skills gaps

The second category of questions related to the several types of disabilities. Participants were asked to comment on their own skills related to the topics also listed in the generic survey. It becomes clear that much staff is feeling insecure about certain aspects of service delivery to PRMs, such as shown in the table below for the category of cognitive impaired passengers.

13. Please rate *your personal expertise* in the following skills on a scale from 1 (no skills present) to 5 (expert) when serving air travellers with *cognitive impairments, (like Alzheimer disease and dementia)*?

Number of respondents: 128

	13. Please rate your personal expertise in the following skills on a scale from 1 (no skills present) to 5 (expert) when serving air travellers with cognitive impairments, (like Alzheimer disease and dementia)?						
	1	2	3	4	5	Average	Median
Ability to understand needs of air travellers with cognitive impairments	4.7%	12.5%	26.5%	34.4%	21.9%	3.6	4.0
Ability to solve requests of air travellers with cognitive impairments	3.9%	16.4%	23.4%	35.2%	21.1%	3.5	4.0
Ability to communicate with air travellers with cognitive impairments	3.1%	14.2%	31.5%	33.1%	18.1%	3.5	4.0
Ability to find information for air travellers with cognitive impairments	4.7%	15.0%	32.3%	32.3%	15.7%	3.4	3.0
Total	**4.1%**	**14.5%**	**28.4%**	**33.8%**	**19.2%**	**3.5**	**4.0**

Source: online survey INCLAVI 2023 (n=128)

The survey clearly shows that staff has problems dealing with communication, finding information, and solving problems for especially this group of PRMs. Also for other PRMs the scores are similar, such as persons with hearing deficiencies or PRMs with language impaired speech, as shown in the next two tables below.

15. Please rate *your personal expertise* in the following skills on a scale from 1 (no skills present) to 5 (expert) when serving air travellers with *hearing disabilities*?

Number of respondents: 127

	15. Please rate your personal expertise in the following skills on a scale from 1 (no skills present) to 5 (expert) when serving air travellers with hearing disabilities?						
	1	2	3	4	5	Average	Median
Ability to understand needs of air travellers with hearing disabilities	1.6%	7.1%	26.8%	33.0%	31.5%	3.9	4.0
Ability to solve requests of air travellers with hearing disabilities	2.4%	7.1%	28.3%	33.9%	28.3%	3.8	4.0
Ability to communicate with air travellers with hearing disabilities	2.4%	16.5%	29.9%	28.4%	22.8%	3.5	4.0
Ability to find information for air travellers with hearing disabilities	2.4%	14.4%	24.8%	28.8%	29.6%	3.7	4.0
Total	**2.2%**	**11.3%**	**27.5%**	**31.0%**	**28.1%**	**3.7**	**4.0**

Source: online survey INCLAVI 2023 (n=127)

17. Please rate *your personal expertise* in the following skills on a scale from 1 (no skills present) to 5 (expert) when serving air travellers with *language impaired speech*?

Number of respondents: 127

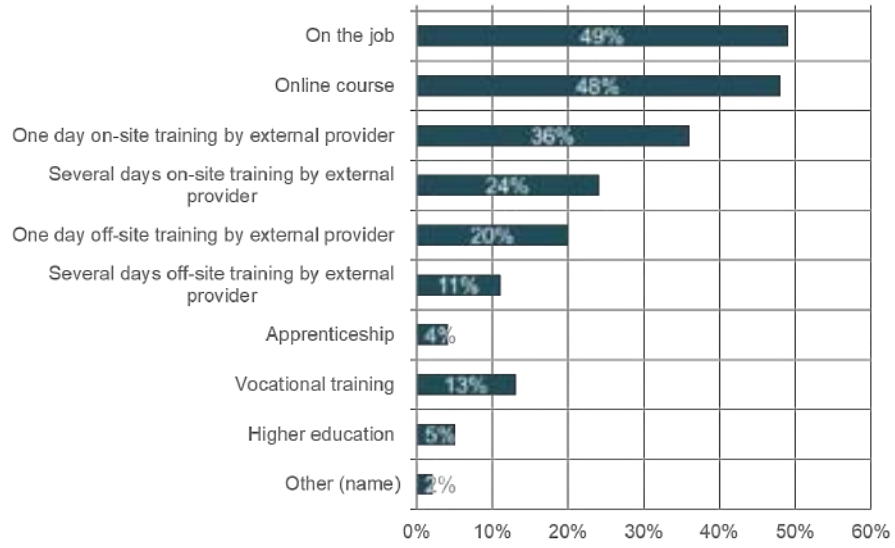
	17. Please rate your personal expertise in the following skills on a scale from 1 (no skills present) to 5 (expert) when serving air travellers with language impaired speech?						
	1	2	3	4	5	Average	Median
Ability to understand needs of air travellers with language impaired speech	3.2%	12.6%	29.9%	37.0%	17.3%	3.5	4.0
Ability to solve requests of air travellers with language impaired speech	3.2%	11.0%	29.9%	38.6%	17.3%	3.6	4.0
Ability to communicate with air travellers with language impaired speech	3.9%	18.1%	26.0%	37.8%	14.2%	3.4	4.0
Ability to find information for air travellers with language impaired speech	3.2%	15.7%	29.9%	36.2%	15.0%	3.4	4.0
Total	**3.4%**	**14.4%**	**28.9%**	**37.4%**	**16.0%**	**3.5**	**4.0**

Source: online survey INCLAVI 2023 (n=127)

Lastly, 54% of respondents report that they have never had training on PRM related issues. The remaining 46% of staff that has received training, was incredibly positive about the impact of these trainings. When considering modes of training delivery, staff responds that an online course combined with on-the-job training would be best as can be seen below.

21. What methods of training in serving air travellers with special assistance needs would you like to receive? (more than one answer option possible)

Number of respondents: 128, selected answers: 271



Source: online survey INCLAVI 2023 (n=128)

The results of the survey confirm that staff in aviation and airlines have difficulties on certain areas of service delivery that may not be well addressed in PRM courses so far in an appropriate manner.

While looking at the contents of the ECAC 5G annex basic module included in the annexes, there is explicit mentioning of this item:

6. Interpersonal skills and methods of communication with deaf and hearing-impaired people, visually impaired people, speech impaired people and people with a cognitive impairment or mental health problems;

The preliminary conclusion is that the INCLAVI curriculum amongst other areas, should focus in detail on these types of skills, particularly on **finding information, effective communication in multiple languages** and **problem-solving skills** appear as key skills to be developed.

5 Skills gaps: inputs from educational experts, stakeholders and PRMs

5.1. Introduction and methodology

In this chapter, results are presented of data collected through expert interviews that have been conducted in the 5 countries of project implementation, to better service PRMs in their customer journey.

During these interviews, aviation and educational experts analyzed challenges and best practices in education and training and developed recommendations for the design of the INCLAVI learning platform. This chapter thus provides more insights into the **learners of INCLAVI**, as well as proposed **training contents**, **pedagogical approach, and methods of delivery** as well as **assessment.** Insights collected from the five country reports on each of these training areas will be presented in the following paragraphs. At the end of the chapter, some suggestions on best practices are included.

5.2. PRM Customer journey touchpoints: identification of INCLAVI learners

As indicated previously, during each of the phases in the customer journey, the PRM passenger will be in contact with different staff of travel agencies, airlines, and other subcontracted parties, that conduct their tasks in relation to various jobs and occupations. In **annex 10**, an unbelievably detailed description of the PRM customer journey is connected to a series of common ESCO occupations that relate to the various touchpoints. These ESCO occupations also correspond to the **ECAC 30 classification** as presented in chapter 2 and detailed in **annex 9** to this document.

From the previous chapters, it can be derived that there is a large set of staff persons that connects to PRMs during their customer journey. Unfortunately, there has not been a systemic approach that defines the occupations that need to be trained in PRMs assistance.

Also, experts and staff indicate that they receive limited training in this matter. There are many reasons for this, such as the current shortage of aviation staff and difficulties to retain staff in airports and airlines and costs of these types of training, especially of they require practical exercises.

When considering these constraints, it is therefore important for the INCLAVI training initiatives to focus on the **key occupations** where most effect can be achieved. These are preferably the occupations that are connected to the touchpoints of the PRM customer journey. In order to start building such an overview of learners, the ECAC 30 (annex 5G) framework presented earlier provides a good starting point. This framework has been modified below, and completed with a list of 20 key ESCO described occupations as included in **annex 9** that could be the first group of learners for the INCLAVI platform[5].

[5] Please see Annex files for a more extensive list of occupations related to these ESCO codes

Table 2: Proposed INCLAVI framework of learners based on ECAC categories

	Target Group	**Possible occupations**	**ESCO**
Module1	Check-in/ gate agents		
	Security check	**airport security officer**	5414.1.1
	Airport information	**Travel consultants and clerks**	4221
	Ticket offices	**Travel consultants and clerks**	4221
	Lost & found	**airport baggage handler**	9333.1
	Border police	**customs and border inspectors**	**3351**
	Customs / immigration	**customs officer**	3351.1
		hand luggage inspector	**3351.2**
	Bar/rest./shops	**shop manager**	**1420.4**
		shop assistant	**5223.6**
	Parking agents	**parking valet**	**8322.4**
	Ramp agents	**ramp agent**	**9333.1**
	Airport Management	**Airport operations officer**	**3154.1.3**
		aviation safety officer	**3119.3**
		deck officer	**3152.1**
		airport director	**1324.1**
Modules 1+2	PRM assist. provider	**aviation safety officer**	**3119.3**
	PRM project manager	**airport manager**	**1324.1**
Modules 1+3	Cabin crew	**flight attendant**	**5111.2.1**
		cabin crew instructor	**2320.1.8**
		steward/ stewardess	**5111.2**
		ground steward/ stewardess	**4221.1**
		flight instructor	**3153.2.3**
		flight operations officer	**3154.3**

5.3. Skills gaps: identification of training content

The Netherlands

- The training activities in relation to provision of services to PRMs should highlight the importance of treating PRMs in the same way as regular passengers. However, staff needs to have an understanding of the wide range of disabilities to be able to respond to the passengers' needs when, and if, needed.
- To ensure a positive experience for PRMs, it is also crucial that staff members are aware of the impact they have on the passenger's journey. This includes understanding how their

actions and behaviours can affect the passenger's experience and taking steps to minimize any negative impacts.

- INCLAVI Training content should be aligned with existing three modules as described by ECAC and enrich these with areas that are mentioned by stakeholders and users.

Spain

- The service to PRMs is important, but until now airline and airports focus on the **efficiency of the operation** of airport infrastructures. Experts acknowledge that the accessibility movement is beginning and must be taken into account and that all airports should provide all the necessary services both at the infrastructure level and at the service level.
- In a training, **each type of disability** should be taught and how to address each one. Then, it could be good to have specific trainings for each type, going more into details depending on what people want to specialize in.
- In many cases, the company that provides the service to PRMs at the airport is outsources and is in charge of taking these passengers onto the plane and then picking them up. It is never the airline itself, so these persons need to be trained as well. Normally, these companies are the ones that have the correct training and know exactly how they should attend them. The airline only serves them during the flight.
- Learners should have **knowledge of the procedures**, where PRMs should be sitting, what to do with the essential material they carry.
- Also they need to learn how to correctly use language to address PRMs.

Turkey

- Training should primarily focus on educating staff members on how to treat passengers and address their specific needs. Practical training is a significant component, covering the transportation of passengers with orthopaedic disabilities, mobility challenges, and sign language proficiency for hearing-impaired passengers. These programs also include theoretical and practical aspects. The advantage of this is that you target a wide range of learners and increase awareness throughout the organization.

Finland

- Accessibility is such a broad topic; it should have its own course. Most experts agree that the topic is so broad that most important is to get an introduction; and to sensitize the students to the idea of people with special needs and encountering them as customers.
- In any training currently there is an **over-emphasis on wheelchair users**. The fact that not all disabilities are visible needs to be pointed out; some experts view specifically **neuro diversity** as a prominent issue: “it is easy for us to recognize visible uniqueness, but the autistic spectrum is a different matter. Focus on invisible areas, the challenge for staff is to understand what we do not see→ this could be panic disorder or autism, ADHD, sensory sensitivity, etc. Experts comment that it is easier to interact with someone who has an intellectual disability or a child having an aggressive episode due to sensory overload.
- The **attitude** of the **customer service agents** is the key element to be made more inclusive. Here, issues like ‘how to recognize, engage and act’ come into sight. It is recommended not to speak about PRM, but use an umbrella term cush as “inclusive” and then divided further into smaller parts.

- Training content should also assess how to **anticipate potential situations.** As an interviewee responded *"If I were a trainer, I would tell what is significant; anticipation is one such factor. It helps, whether it is OCD or fear of flying; one can verbalize what is happening, where the sound is coming from. I am pondering if it would be good to consider how I can acknowledge the other person in an encounter; not to get too close; to stick to clear communication, ensure how the situation feels. It is about the encounters; how to approach a person who seems anxious or a child who looks like they might toss all the coffee cups somewhere. What can I do in that situation, so that they calm down... "*

As a conclusion from the above, based on insights, a proposed model of content has been developed and proposed in the next table:

Table 3: Proposed INCLAVI domains of learning

Domain of learning	**Area of learning**	**Description of content / intended learning outcomes**
1: Skills and knowledge development	Legal and Ethical Considerations	Familiarizing with international and local regulations, and ethical practices in serving PRMs.
	Sensitivity Training	Developing empathy/understanding for passengers with diverse needs.
	Communication Strategies	Tailoring communication for different disability types.
	Communication Skills	Enhancing verbal and non-verbal communication for effective interaction.
	Emergency Response	Training for emergency situations involving PRMs.
2: Disability Awareness / Types of Mobility	Understanding Various Disabilities	Common disabilities affecting mobility (e.g., mobility impairments, visual and hearing impairments).
	Passenger Profiles	Create awareness of passenger profiles and specific requirements (temporary disabilities, permanent disabilities, hidden disabilities, service dogs).
	Assisting Techniques	Assisting passengers with various mobility aids and devices.
3: Airport Navigation and Assistance	Airport Layout and Facilities	Understanding the layout of airports and accessibility features.
	Arrival and Departure Procedures	Assisting passengers through check-in, security, and boarding processes.
	Passenger Escort Techniques	Safely guiding passengers through the airport, including embarking, and disembarking the aircraft.
4: In-Flight Service and Comfort	Aircraft Accessibility	Understanding the design and features of accessible aircraft.
	Seating Arrangements	Allocating suitable seats and ensuring comfort for passengers with reduced mobility.
	Onboard Assistance	Providing support during boarding, in-flight, and disembarking.
	Emergency Procedures	Addressing emergency situations and evacuation for PRMs.
5: Customer Service Excellence	Quality Customer Service	Focusing on exceeding customer expectations and ensuring a positive experience.
	Feedback and Conflict Resolution	Developing skills to manage feedback / resolve conflicts with passengers.
	Continued Training / Development	Emphasizing the importance of ongoing learning and improvement.
	Case Studies and Best Practices	Analyzing real-life scenarios and industry best practices on PRM assistance.

5.4. Assuring success: pedagogical approach and methods of delivery

In this paragraph, a systemic overview is presented of feedback received from experts in education in four countries of project implementation, which relate to the pedagogical approach and methods of delivery of training components.

Spain

- A generic training could be online, but it should always be complemented with a part that must be face to face, to be able to see how the reality is, how to manage PRMs. The Spanish AESA does not allow to have online trainings; it must be in person. For both theory and practice.
- Training should be given **by PRMs themselves**, since they are really the ones who know things as they are. Especially they could be involved when giving the sessions to **raise awareness**. This could be done through videos of real cases, procedures... (a blind person who explains their journey in the airport or aircraft, and how he/she should be assisted).
- The content of the training should be more than the official required by AESA, you must go a little further. As an example, regarding the type of passengers that may be encountered, the INCLAVI training should include the reality (persons) that staff will encounter, not just an overview with a catalogue of types of disabilities. Also training institutions indicate that INCLAVI formation could be particularly useful to complement their trainings.
- Short workshops on awareness could complement official training for staff that is not directly engaged with PRMs.
- Refresher courses should be implemented annually.

Finland

- Most experts propose to introduce the PRM topic in **a classroom or max hybrid setting**: *"First of all, I would say that as face-to-face teaching, where you can practice in a classroom setting. But also as a hybrid, where you can practice and study some parts independently. But we would also really practice with the students"*
- It is recommended that **e-learning** needs to be well designed from the onset; it should not contain regular training transferred online; you need to break into several small pieces and really focus on engagement.
- The inclusion of a **subject matter expert** was seen as mandatory to a successful course; to learn firsthand about the experiences of PRMs.
- Training for professionals in the industry needs to be **very concrete, short, and flexible** in delivery: *"For training industry professionals, it is essential to be hands-on. This course included a lot of academic materials like articles, which are not suitable for the airport environment. They deal with many different systems, so training needs to be very practical. If I still had a 22-member expert team, I would start by providing some data and facts about the number of these passengers. Then, I would offer training materials in an e-learning format that simplifies complex regulations. I would also bring in an experienced speaker to*

provide valuable insights. This speaker should be informative but critical, sharing stories like the story of someone not drinking for 24 hours before a long flight because they cannot access the restroom; these real experiences can be shocking. It is a combination of numerical data, legislation, and the perspective of an experienced speaker."

- Training pedagogy should progress **step-by-step** so a learner cannot proceed to the next level without completing the earlier one. It should include some reflection moments and videos should be short, 5-10 minutes, or even 2-3 minutes. It is recommended to give very practical tools but also to offer some context and scientific/ research-based data.
- Training methods online could send reminders from the learning app, when you have not accessed in a while (compared to **Duolingo, Udemy**)

Turkey

- The key goals of PRM trainings: ensure inclusive and effortless service, offering a smooth and comfortable travel experience for passengers with limited mobility, and adhering to international and national aviation regulations while prioritizing passenger safety and satisfaction.
- Training companies recommend various pedagogical approaches for PRM training, including **needs analysis-driven preparation**, consultation with academic experts to enhance services, and **principles-based disability awareness training**.
- Practical components may vary, with some offering comprehensive training on different disabilities, while others use role-play and certification for hands-on experience.
- Some experts recommend practical **training rooms for simulation**, and others stimulate **scenarios with role plays**. While some elements may overlap, such as disability awareness, the overall approach varies.
- Most training companies offer training through a range of delivery modes, including online, classroom, and practical training. Some emphasize virtual online lessons, while others provide a mix of in-person and online sessions. A few organizations employ **psychological support** and **role-play scenarios** to ensure comprehensive training.

5.5. Assessment and certification

Finland

- PRM training assessment methods includes a variety of approaches such as observation, feedback collection, and passenger input. There is no explicit mention of a standardized measurement method, but these approaches are collectively employed to continuously enhance the quality of services and training. The emphasis lies on feedback-driven improvements based on real-world observations and passenger experiences.
- Some kind of certificate or badge was seen as perhaps being valuable towards the employers. However, the marketing of such a badge so that it would be something customers understand divides opinions or even the necessity of such is questioned (compare to name tags with flags of the languages the personnel speak)

- Training in industry could also have a badge or certification since such systems are already used for example dangerous goods training or Amadeus ticketing

Turkey

- PRM training assessments and testing methods vary among companies, with no standardized testing approach. These methods include systematic retakes, ongoing refresher training, post-training examinations, role-play evaluations, and covert safety inspections. Additionally, passenger feedback and observation studies contribute to data collection, allowing for continuous improvement of training effectiveness.
- Certification: In the aviation industry, the certification process for training programs varies among companies. Some provide participants with certificates, whether they pass an exam or complete the training, which may serve as recognition of their completion and qualification. However, not all training programs lead to recognized certificates, and the issuance of degrees is not a widespread practice in this context.

5.6. Best Practices

The following recommendations were mentioned by interviewees when it comes to design and delivery of training:

- Combining theory with practical application through workshop-style activities.
- Ongoing skill reinforcement in real airport environments to prevent knowledge from being forgotten.
- Use a comprehensive approach that extends training to specialized and general airline staff.
- Engage a diverse pool of trainers, including experts from various backgrounds, to provide comprehensive insights.
- Engage with aviation industry (IATA): The aviation industry, including IATA, has experience in designing PRM training curricula, although the extent of this engagement varies. Collaborations with IATA result in recognized and certified competence in the field, and diverse instructor groups recognize the interrelated elements in the aviation sector.
- Engage PRMs: feedback from passengers with special needs is collected to improve training.
- Collaborate with national organisations linked to ENAT helps align services and training.
- A training that enabled **flight attendants** to assist passengers with visual and hearing impairments, resulted in enjoyable flights with positive feedback.
- A training for **assisting amputee teams** received thank-you emails, indicating a positive impact on their journey experience.
- A staff's training and support for **a panicked wheelchair passenger** ensured a smooth journey, despite last-minute changes.
- The **"Sunflower Badge" training** enhanced the experience of passengers with hidden disabilities.

6 Conclusion: proposed learner profiles and initial content to address skills gaps

In the concluding section, we propose learner profiles and initial content designed to address the identified skills gaps in the provision of services to Persons with Reduced Mobility (PRMs). Broadly, the focus is on developing learner occupation profiles that emphasize treating PRMs equitably, facilitating a comprehensive understanding of various disabilities to address passengers' needs effectively. The importance of staff awareness and adequate training is highlighted as essential for achieving accessibility and inclusion in the aviation industry. Specific recommendations from the Netherlands, Spain, Finland, and Turkey underscore the need for a balanced approach, combining online and face-to-face training, specifying each type of disability, incorporating real-life scenarios, and involving PRMs in training sessions. The emphasis extends beyond regulatory requirements, advocating for a more in-depth understanding of the realities encountered by PRMs, proper use of language, and a nuanced awareness of the challenges faced during air travel. Additionally, the financial aspects and practical considerations associated with training flight attendants are addressed, shedding light on the complexities involved in creating a truly inclusive and accessible air travel environment.

Conclusions:

- The existing framework of training as described by ECAS provides a **good starting point** for defining the curriculum and content as well as for identification of learners for the INCLAVI learning platform.
- An initial set of **20 ESCO occupations** identified will cover most of the staff areas that interact with PRMs during their passenger journey.
- The obligatory content of modules as defined by ECAC covers the core thematic areas needed for the INCLAVI training platform. However, based on interviews with aviation experts and PRMs, the platform should zoom into **specific areas of interest** that have been defined under five additional categories (see chapter 5).
- More in general, the reason PRMs still face challenges during their customer journey, lies in the fact that even though training curricula, content and materials may be developed, **methods of delivery** may not be appropriate, as staff has **limited time for training** and current trainings are usually **'squeezed'** in between other activities.
- The INCLAVI project should therefore focus on developing innovative and inspiring **methods of delivery** and **pedagogies**, while making use of existing content that has been developed by especially private training suppliers. This would mean that trainings do not follow a standardized approach, but use a set of **flexible adaptable strategies** that companies employ based on their specific requirements and industry dynamics.
- When it comes to training pedagogy, it can be concluded that a variety of training methods can be used, but that these should be flexible, easy to access and include a combination of theory and practice.

The proposed learner profiles for addressing skills gaps in serving PRMs encompass a holistic, yet multifaceted approach, drawing insights from diverse international perspectives. The Netherlands emphasizes the importance of treating PRMs with care, dignity, and respect, underlining the need for staff awareness and comprehensive training to achieve accessibility and inclusion in the aviation industry. Spain suggests a blended training approach, combining online and face-to-face sessions, specifying each disability type, and incorporating real-life scenarios. Finland advocates for a broad accessibility course, sensitizing students to various specific needs and emphasizing the role of customer service skills. Turkey focuses on inclusive service goals, practical training for staff, and engaging feedback from PRM travellers.
Across these recommendations, a common theme emerges: ***the necessity of practical, inclusive, and regularly updated training, utilizing various delivery modes, engaging real-world scenarios, and involving stakeholders, including PRMs, to ensure a holistic and adaptable learning experience.*** The learner profiles aim to bridge gaps, enhance empathy, and address emergent challenges in the aviation industry's provision of services to PRMs.

Key challenges to be addressed:

- Effective communication with individuals with special needs is multidimensional. Make sure that training enhances empathy and involves more stakeholders.
- There are evolving issues and regulations in PRM policies. Assure annual updates and refresher trainings are conducted, also considering the elevated level of staff turnover.
- There is a lack of knowledge sharing amongst training providers, due to the commercialisation of the training industry. The PRM area is explicitly an area where collaboration and shared training should be supported and enhanced. The same counts for sharing of successful curricula, documents, and updates.
- AI may be a helpful technology in design of curricula! Especially when considering the limited financial resources for design of the INCLAVI platform, pooling of knowledge is required. It is recommended to strive for standardization and better to deliver a limited number of high-quality modules than a large number of substandard quality modules.

Final recommendations for management, operations, and practical design:

- Identify basic needs through workshops and symposiums to address common challenges in the airline industry.
- Incorporate passenger feedback in the form of short videos to enhance visual elements in training and reduce costs with a blended approach.
- Continuously expand the platform's content to reach more individuals and offer multiple perspectives on communication and passenger needs.
- Develop an application to engage stakeholders and encourage innovative ideas.
- Utilize various resources to enhance content, including educational materials for pregnant passengers, exercises for in-flight comfort, and initiatives like the Sunflower Badge for passenger assistance.

- Bridge the gap between industry and academia for a successful, well-rounded training program.
- Make the training easily understandable and not overly complex.
- Adapt the training to evolving regulations and technologies to ensure relevance.
- Keep the training simple and short to allow individuals to balance training with operational efficiency.
- Add more exercises during the courses
- Visualizing the barriers and asking questions
- Face to face or hybrid training for students and short online training modules for industry should be implemented.
- Multiple language choices including Turkish
- Standardized documents/ contents
- Free modules
- Case studies
- Scenario based learning
- Block building learning
- Customize content for various industries.
- Keep training concise and easily understandable, considering operational demands.
- Enhance learning through role-playing and practical sessions.
- Ensure ongoing training.
- Keep content updated with regulations and industry changes.
- Encourage feedback through video submissions.
- Include project-related modules.
- Collaborate with industry and academia for updates.
- Develop a system for stakeholder contributions and collaboration.

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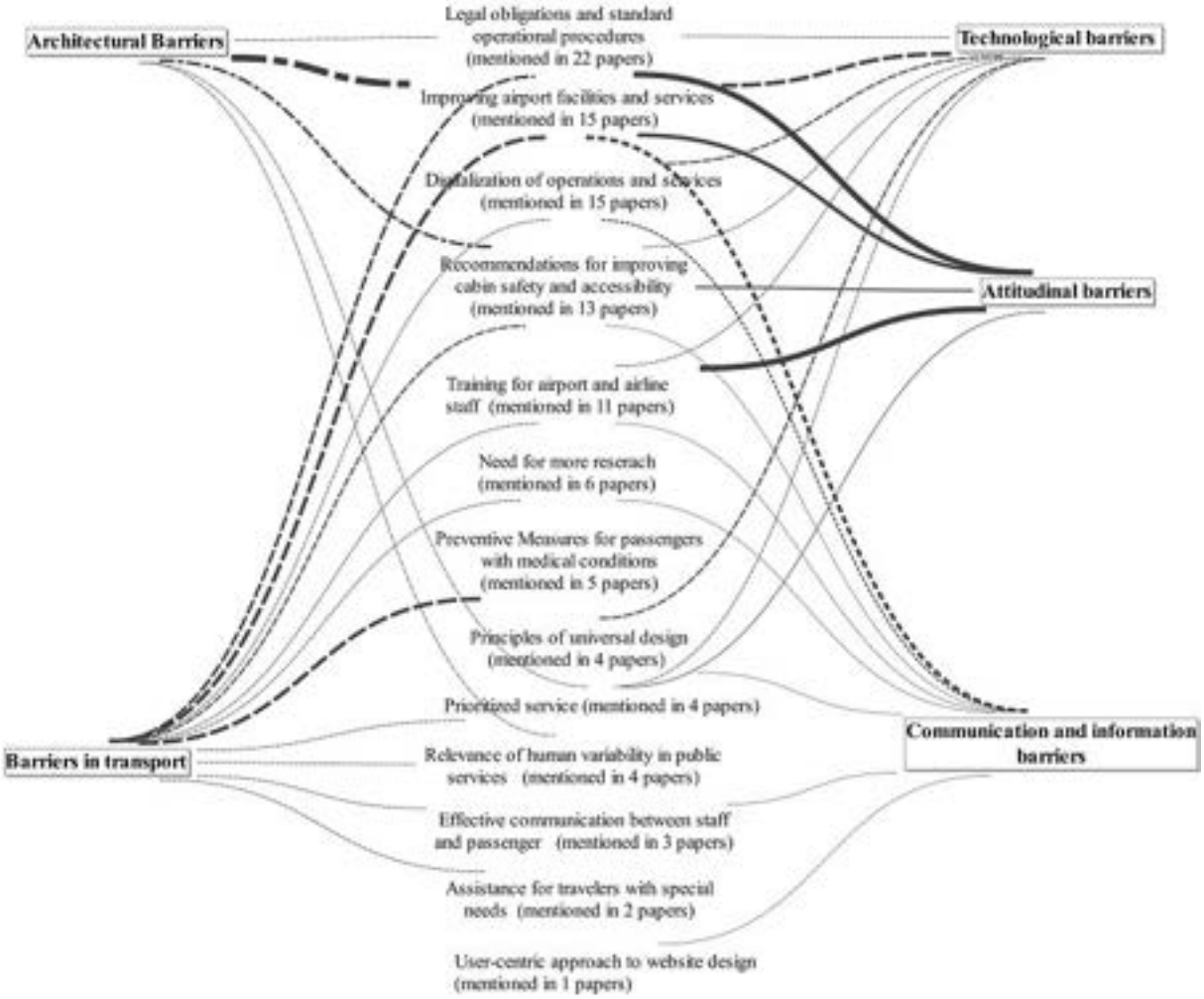
Joseph Wildman, university of Bath. Supporting the Needs of Air Travel Passengers with Disabilities

Annex 1 Summary for PRM barriers in aviation and solutions



Maxqda Maxmap of Existing Barriers groups and clustered solutions for the five group of barriers

Source: "Existing barriers and suggest solutions for air passengers with special needs: A Systematic Literature Review, by Domingo et al. (forthcoming)"

Annex 2 ACAA Guidelines

In the United States, in 1990, the Department of Transportation promulgated the Air Carrier Access Act of 1986's (ACAA) implementing regulations. 1 The regulations have been amended a number of times. Among other things, these regulations require covered airlines to provide disability-related training to their employees and to provide or ensure such training for contractor staff, who deal with the traveling public, including but not limited to, pilots, flight attendants, gate agents, reservation and ticket counter personnel, ramp and baggage-handling personnel, and passenger service personnel. The training content that is required in the US is the following (GAO, 2022):
Airlines must ensure training to proficiency for public-facing employees or contractors, or ensure contractors train contract personnel to proficiency, as appropriate to the duties of each employee concerning:

- The requirements of the Air Carrier Access Act's implementing regulations and other applicable federal disability-related regulations affecting the provision of air travel to passengers with a disability (14C.F.R. § 382.141(a)(1)(i)).
- An airline's procedures for providing service to passengers with disabilities, including the proper and safe operation of equipment used for accommodation (14 C.F.R. § 382.141(a)(1)(ii)).
- For employees providing boarding and deplaning assistance, airline procedures to perform these duties, including the use of related equipment (14 C.F.R. § 382.141(a)(1)(iii)).

Airlines are also required to train public-facing employees or contractors, or ensure contractors train contract personnel, with respect to:

- Disability awareness, including how to distinguish among the different abilities of an individual with a disability (14 C.F.R. § 382.141(a)(2)).
- Appropriate communication responses to passengers with a disability, including people with physical, sensory, mental, and emotional disabilities (14 C.F.R. § 382.141(a)(2)).
- How to recognize requests for communication accommodation from passengers whose hearing or vision is impaired, including individuals who are deaf-blind (14 C.F.R. § 382.141(a)(3)).
- How to use the most common readily available methods for communicating with passengers whose hearing or vision is impaired, including individuals who are deaf-blind (14 C.F.R. § 382.141(a)(3)).
- How to perform the duties of a Complaints Resolution Official (CRO) if an employee is designated as one, in addition to all other training requirements (14 C.F.R. § 382.141(a)(7)).
- Airlines must consult with organizations representing people with disabilities when developing training programs, policies, and procedures (14 C.F.R. § 382.141(a)(4)).
- Airlines are to ensure that personnel, including contractors, who are required to receive training, also receive refresher training, as appropriate to the duties of each

employee and as needed to maintain proficiency, at least once every three years. (14 C.F.R. 382.141(a)(5)).

- Airlines are to ensure that employees designated as CROs receive annual refresher training (14 C.F.R. § 382.143(a)(1))
- Airlines must retain training and instructional manuals or other guidance for review by DOT if requested, as well as individual employee training records for three years (14 C.F.R. § 382.145).

Both regulations specify that initial as well as refresher trainings are needed not only for direct customer facing staff but also staff that is not directly in touch with PRMs.

Annex 3: US airline performance in PRM training (GAO, 2022)

Appendix II: Selected Characteristics of Disability-Related Training for Public-Facing ... Airline and Contractor Employees at Airpo

Table 2: Selected Characteristics of Disability-Related Training for Public-Facing Employees at Airpor Selected Airlines and Service Contractors

	e contractors	8 Selected airlines	6 Selected servic
	t agents	Employee roles	Customer service, gate, and ticket agents	Passenger suppor
	5 developed their own curriculum, and 4 said curriculum was informed by disability advocate resources. 1 used airline-developed curriculum.	Training curriculum	• 7 developed their own curriculum informed by disability advocate resources and DOT guidance. • 1 purchased curriculum from a training organization.	•
	ed on assengers	designed to meet relevant regulations, and included additional customer service-focused content.	meet relevant regulations. • 6 described additional content focus customer service skills specific to p with disabilities.
	n training, trainers, and 1 airline said puter-based training. additional elements via rning. hours, depending on the	• All 6 contractors said they conduct training in-person, some of whom are dedicated trainers and others are airport-level leadership. • 1 provides additional computer-based elements. • Ranged from 6 to 40 hours.	Initial training delivery method and length	• 7 airlines said they conduct in-perso mostly by dedicated it only provides com • 2 said they provide computer-based lea • Ranged from 1 to 8 role[a]
	irlines reported having OJT at the airport l, and 4 said they shared supplemental ning information to employees on an ad hoc is.	• All 6 contractors said they require OJT following classroom training, such as shadowing or being shadowed by an experienced agent.	Additional on-the-job training (OJT) components	• 4 a lev trai bas
	8 included knowledge checks during or ms after initial training.	• 4 included knowledge checks during or exams after initial training. • 2 said they assess employee proficiency through job performance.	Assessment of employee proficiency	• All exa
	y and	• 6 required annual refresher training, some computer-based. • Ranged from 45 minutes to 4 hours, depending on an employees role	• 5 required annual refresher training. • Ranged from 2 to 8 hours[a]	Refresher training, frequenc length
	luation and updates	• All take holistic approach to evaluating training by considering many factors. • 4 airlines reviewed updated training at least annually, and 4 did so on an "as needed" basis.	• 5 considered employee performance as reflection of training effectiveness. • 2 reviewed training at least annually, while 4 reviewed it on an "as needed" basis.	Training eva

Source: GAO analysis of interviews with representatives from selected airlines and contractors and training-related documents. | GAO-21-354

[a]Not all selected entities provided complete information: 7 of 8 airlines reported initial training hours; 5 of 8 airlines and 2 of 6 contractors reported refresher training hours.

Annex 4: Attachment I to ECAC Annex 5G Training Modules

Module 1 Disability-equality and disability-awareness

A – Legislation, Codes and Recommended Practices

- ICAO Annex 9
- EU Regulation(EC) No 1107/2006 and implementing guidelines (objectives, requirements, and obligations)
- ECAC DOC 30, Part I, Section 5
- US Air Carrier Access Act 14 CFR 382 and recent updates (objectives and differences with European legislation)
- IATA Resolution 700

B – Training areas

- Assistance to persons with disabilities
- Statistics
- Causes of disability
- People with walking difficulties
- Wheelchair users
- Vision impaired people
- Hearing impaired people
- People with speech impairments
- People with cognitive impairments
- People with mental health problems
- Hidden disabilities
- Other disabilities

C – Knowledge and competencies to be acquired

1. Awareness of, and appropriate responses to, passengers with physical, sensory, hidden, cognitive impairments, or mental health problems, including how to distinguish between the different abilities of individuals whose mobility, orientation, or communication may be reduced;
2. Understanding of allowed medical baggage. Be aware that medical aids could also be general aids, such as wipes, gloves, or an extra set of (under) clothing.
3. Understanding of barriers faced by persons with disabilities and PRMs, covering attitudinal, environmental/physical, and organisational barriers;
4. Knowledge of service animals , including the role and the needs of a service animal;
5. Ability to deal with unexpected occurrences (like long delays, behaviour problems, health problems; etc.);
6. Interpersonal skills and methods of communication with deaf and hearing-impaired people, visually impaired people, speech impaired people and people with a cognitive impairment or mental health problems;

7. General awareness of ECAC recommendations including ECAC Doc 30, Part I, Section 5 and relevant Annexes, EU legislation, US legislation and IATA guidelines on access to air travel;
8. How to manage wheelchairs and other mobility aids carefully to avoid damage, (for all staff who are responsible for baggage handling).
9. Job related, deepened knowledge to ensure that the dignity of persons with disabilities and PRMs is preserved, especially during security checks. Ask for details and/or personal preferences of persons with disabilities or reduced mobility of how to lift and touch.

Module 2 Assistance provision at the airport

A –Training areas

Participation of people with a disability and with experience in air travel is essential.

- Job description and potential risks
- Statistics, trends, and prognostics
- Causes of disability
- Kinetics of lifting (theory and practice)
- Assistance of people with walking difficulties
- Assistance of people using wheelchairs
- Assistance of vision impaired people (theory and practice)
- Assistance of hearing-impaired people (theory and practice)
- Assistance of people with cognitive impairments and mental health problems (theory and practice)
- Assistance of people with hidden disabilities (theory and practice)
- Basic principles of assistance at distinct stages during the journey at the airport (Check-in; customs; security check; luggage belt, lost and found, etc)
- First aid (this should be delivered by an organisation or individual certified to deliver first aid training)

B - Skills and knowledge

In addition to the skills and knowledge listed in Module 1-B, all staff assisting persons with disabilities and PRMs at an airport should also be capable of distinguishing between different types of disabilities (and the corresponding IATA codes) and should have knowledge of the most appropriate form of assistance for each including:

1. How to assist wheelchair users make transfers into and out of a wheelchair;
2. Skills for providing assistance to persons with disabilities and PRMs travelling with a service animal, including the role and the needs of these animals;
3. Techniques for escorting blind and partially sighted passengers and for the handling and carriage of service animals;
4. An understanding of the types of equipment as described in Annex 5-D, 2.3, which can assist persons with disabilities and PRMs and knowledge of how to handle such equipment;

5. The use of the boarding and deplaning assistance equipment used and knowledge of the appropriate boarding and deplaning assistance procedures that safeguard the safety and dignity of persons with disabilities and PRMs;
6. Understanding of the need for reliable and professional assistance. Also, awareness of the potential for certain persons with hidden disabilities to experience feelings of vulnerability during travel, because of their total dependence on the assistance provided.
7. First aid (this should be delivered by an organisation or individual certified to deliver first aid training).

Module 3 Assistance provision on board aircraft

A – Training areas

Participation of people with a disability and with experience in air travel is highly recommended in this part.

- Infrastructure aircraft and legislation
- Kinetics of lifting (theory and practice)
- Assistance of people with walking difficulties
- Assistance of people using wheelchairs
- Assistance of people with low function of upper limbs (arms and hands)
- Assistance of vision impaired people (theory and practice)
- Assistance of hearing-impaired people (theory and practice)
- Assistance of people with hidden disabilities (theory and practice)
- Assistance people with cognitive impairments and mental health problems (theory)

B – Knowledge and skills to be acquired

In addition to the knowledge and skills listed in Module 1-B, all staff assisting persons with disabilities and PRMs on board an aircraft should also be capable of distinguishing between diverse types of disabilities (and the corresponding IATA codes) and should have knowledge of the most appropriate form of assistance for each including:

1. If required by the operator, procedures for lifting a passenger with a physical disability from their seat to and from the on- board wheelchair (if installed).
2. Method of use of the on-board wheelchair (where available).
3. Appropriate seating for persons with disabilities and PRMs.
4. Appropriate seating for passengers with service animals and method of securing the animal.
5. Stowage of mobility equipment.
6. Appropriate pre-flight safety briefings and associated safety information.
7. Procedures to be taken in the event of an emergency situation such as decompression or evacuation.

The content of this training should be compatible with applicable safety legislation.

Annex 5: Overview of private training companies on PRM

	name	Country	type institute/ target	course	Time	Learning outcomes/ Content addressed	Website
1	Passe Partout	France	Any manager or duty manager whose sphere of responsibility may cover the PRM/Assisted travel area within the airport environment.	train-the-trainer in PRM matters	part 1: initial training 5 days; part 2: complementary training 3 days	This course is designed for trainers who fulfil the criteria of ECAC Doc. 30, Part I, Section 5, Annex 5G, that means having expertise and experience in the assistance of disabled persons and PRM in air travel. They should have knowledge and experience in instructional techniques and a basic understanding of the relevant legislation and recommendations.	https://www.passepartouttraining.com/training-programme/airports/
2	Skywise solutions	Belgium	Private training company specialized in PRM	PRM assistance staff training (direct assistance providers)	up to 4 days. Refresher courses of 1 day	Learn how to be empathetic and appreciate the needs and requirements of your passenger; Find out how to provide the best support to passengers with either mobility, visual or hearing impairments, as well as elderly passengers and those with cognitive impairments; Get clarity in your understanding of the legal requirements and best practices for use on a daily basis; Improve your understanding of a PRM passenger's journey through an airport and learn what causes unnecessary stress and anxiety and how you can help minimalize these challenges; Get acquainted with many other useful techniques and methods to supplement your everyday tasks and responsibilities with confidence and professionality!	http://www.skywisesolutions.com/courses-training/
3	Skywise solutions	Belgium	Private training company specialized in PRM	Training for airport service providers (check-in, security, gate, information desk, airport call centre staff, etc.) based on train-the-trainer approach	up to 4 days. Refresher courses of 1 day	Learn how to identify passengers with disabilities and people with reduced mobility, why they need specific attention when travelling through your airport and how we can be of best assistance to them; Gain practical knowledge on how to comply with specific requirements focused on services used by PRM passengers during their journey at an airport ; Get a better appreciation of the wide range of varying requirements of PRM passengers including those with mobility, hearing, visual and cognitive impairments; Enhance your direct communication skills and empathy for PRMs by understanding many of their anxieties while also improving your ability to be open in communication and addressing questions; Get advised on how to read and interpret current PRM assistance legal and best practice documents (European, American and Worldwide)	http://www.skywisesolutions.com/courses-training/

4	jaato	Nether lands	Any manager or duty manager whose sphere of responsibility may cover the PRM/Assisted travel area within the airport environment.	Assisted Travel (PRM Assistance) Managers Course	3 -day training on site	Understand and interpret in details aspects of current PRM assistance legal and best practice documents (European, American, and worldwide);. Create and evaluate quality standards of an airport (service level agreements to third parties; data collection of PRM assistance provision; level of satisfaction monitoring tools; means of monitoring on-time performance, etc.); Calculate PRM assistance charge (calculation; cost-related and transparent clause; reporting). Implement and manage step-by-step PRM assistance stages at an airport;. Set and monitor training standards; Better appreciate the varying and wide-ranging requirements of PRMs including those with mobility, hearing, visual and cognitive impairments; Appreciate the value and importance of protecting PRMs mobility equipment; Reduce passenger misunderstanding and disappointment - which can so often result in formal complaints - by applying the "human factor" to managing PRM assistance; Consider the best ways to address PRM complaints, should they occur; Appreciate the importance of IT software systems in the coordination of PRM assistance (best practice examples)	https://jaato.com/courses/1198/assisted-travel-prm-assistance-managers-course/
5	airport college	Finland	PRM Assistance Staff, PRM Assistance Managers Airport operators' staff, ground handling agents' staff, airline staff	Passengers with Reduced Mobility (PRM) eLearning Course	1-hour online course	The course content fully complies with the guidelines of IATA Airport Handling Manual (AHM), IATA Ground Operations Manual (IGOM) and EU (EC) No 1107/2006, USA ACAA (The Air Carrier Access Act), 14 CFR Part 382 and Canada ATPDR (Accessible Transportation for persons with Disabilities Regulations). Course Introduction; Different Passengers and Assistance Needs; Serving and Assisting Passengers; Assistive Devices; PRM Vehicle Operations; Special Situation and Emergencies; Course Summary & Final Test	https://www.airportcollege.com/post/new-passengers-with-reduced-mobility-prm-elearning-course
6	Schiphol	Nether lands	all customer facing staff	n.a.	PowerPoint on awareness		https://assets.ctfassets.net/biom0eqyyi6b/CTKj6NMpYIDGF54gr7Ypb/5aaf594bad5e9bbbd0189d0a4533e705/PRM-Awareness-Training-Powerpoint-ENG.ppt
7	ACI World		PRM Assistance Staff, PRM Assistance Managers Airport operators' staff, ground handling agents' staff, airline staff	passengers-with-reduced-mobility-workshop	3 days	Describe the requirements set out in Regulation 1107/2006 and in ECAC Doc. 30 as well as the US Rule 14 CFR Part 382; Discuss the findings of international organizations and supervisory authorities on the implementation and application of the PRM regulation; Explain how to comply with the legal requirements and avoid fines; Give examples of how to handle the increasing number of requests for reduced mobility services and of good and bad practises that occur daily when applying Regulation 1107/2006; Analyse best practices on assisting passengers with reduced mobility through the airport	https://aci.aero/programs-and-services/global-training/airport-customer-experience-training/passengers-with-reduced-mobility-workshop/
8	www.icao.int	India	airport engineers and airport facilitation	n.a.	5 days 28 hours	Identify the special needs of PRMs travelling through an airport. Establish infrastructure and facilities at appropriate locations as per standard. Maintain	https://igat.icao.int/ated/TrainingCatalogue/Course/809

			managers (technical course)			infrastructure and facilities. Manage PRMs service alignment programme	
9	https://www.butterfly-training.com	global		video as part of cabin crew training			https://www.youtube.com/watch?app=desktop&v=GLWkElyPwWU
10	www.icao.int	global	no mentioning of any training				www.icao.int/training/Documents/GAT_Catalogue.pdf
11	www.IATA.org	global		Assisting Travelers with Special Needs (partner-taught or self-study)	20 hours, self-study	Explain the service needs and business opportunities in the special needs travel market. Define support services available to travellers with special needs provided by the different non-air travel business sectors. Identify common airline services available to travellers with special needs, including standard codes and reservation procedures. Provide advice and assistance to regular passengers traveling abroad and experiencing an emergency health situation	https://www.iata.org/en/training/courses/travelers-special-needs/tttg98/en/
12	www.gmraviationacademy.org/	global			one day online	Describe the requirements set out in Regulation 1107/2006 and in ECAC Doc. 30 as well as the US Rule 14 CFR Part 382. Discuss the findings of international organizations and supervisory authorities on the implementation and application of the PRM regulation. Explain how to comply with the legal requirements and avoid fines. Give examples of how to handle the increasing number of requests for reduced mobility services and of good and bad practices that occur daily when applying Regulation 1107/2006. Analyse best practices on assisting passengers with reduced mobility through the airport.	https://gmraviationacademy.org/sensitivity-training-for-prm-passengers
13	www.aerohelp.com	Russia			16 hours, two days	Increasing the level of professional knowledge in the field of ground and onboard maintenance of passengers with disabilities at airports and on aircraft.	https://aerohelp.com/en/archive/training-course-handling-passengers-reduced-mobility-prm-airports-and-board-aircraft
14	https://wilsonjames.co.uk/aviation-training	UK		passengers' assistance training PRM		awareness disability; how to meet needs of people with any disability hidden or not and reduced mobility	
15	https://ifma-formation.fr/en	France	Any staff in direct contact with traveling Passengers with Disabilities and Reduced Mobility (PRM) during the departure and/or arrival process	Awareness for Passengers with Disabilities and Reduced Mobility (PRM)	4 hours in classroom	Become aware of disability and equality in front of disability. Be able to meet the needs of people with disabilities and reduced mobility depending on their disability or their mobility reduction.	https://ifma-formation.fr/en/training-areas/passenger-ground-services/awareness-for-passengers-with-disabilities-and-reduced-mobility-prm/

16	https://seamilano.eu/en/human-resources/training-shared-services	global	Any staff in direct contact with traveling Passengers with Disabilities and Reduced Mobility (PRM) during the departure and/or arrival process		Education and Training SEA provides the initial 4-hour course and the recurrent course every 24 months for those who have already participated in the initial course	In application of Regulation EU1107 / 06 relating to the rights of people with disabilities, the circular ENAC GEN02A establishes the obligation of specific training for all airport operators who come into contact with the traveling public. Special additional training for employees providing direct assistance to passengers with disabilities.	https://seamilano.eu/en/human-resources/training-shared-services
17	www.smartlynx.aero	global		ToT on PRM issues	4 days	Provide PRM Trainers with a full understanding of the relevant standards, legislation, recommendations and direct knowledge of reference documentation; Share knowledge and experience in instructional techniques; Ensure that PRM Training personnel have knowledge of how to meet the needs of persons with various disabilities or mobility impairments; Provide disability-equality and disability-awareness initial training to all training personnel involved in cabin crew training; Ensure that, upon recruitment, all new employees attend disability related training and that personnel receive refresher training courses when appropriate	https://www.smartlynx.aero/storage/app/media/Training-centre/Cabin-Crew-Instructor-Training/PDFs/prm-initial-refresher-train-the-trainer-courses-intro-1805212.pdf
18	www.toerismevlaanderen.be	Belgium	all customer facing staff in tourism dealing with PRM	Short courses and videos as well as training material in Dutch	Various	Toolkit for people dealing with PRM in Belgium. Explanation of a number of general principles such as Universal Design and the accessibility chain. The rules of thumb for a customer-friendly reception for people with a disability. Concrete advice on communicating and promoting your customized offer.	https://toerismevlaanderen.be/nl/tools/toolkit/opleidingen-toegankelijkheid
19	www.educaweb.it	Italy	all customer facing staff in tourism dealing with PRM	Short course for people working in tour operators	58 hours	The attendees of the course will learn how to plan and develop tour packages, chose, and develop accessible itineraries or paths. Not only they will learn how to focus on the management aspects, taking care of the “special” needs of this peculiar tourism target, the attendees will also be able to monitor services provided and potentially to improve the same ones. In other words, the operators will be trained on complementary tourism, meaning to pay attention to accessibility for everyone, answering to special requests and offering all the integrated services claimed.	https://www.educaweb.it/corso/operatore-turismo-accessibile-cagliari-331521/
20	https://www.altheaformazione.it/	Italy	The course is suitable for all operators in the travel sector - especially environmental guides and companions, and for all citizens who want to concretely address the methodologies of inclusive tourism, approaching the complex world of disability.		10 hours	This course will address in detail the problems and potential linked to the topic of accessible tourism for people with physical disabilities. The objective of the course is to offer knowledge of aids (joëlette, tandem, etc) which, if used, allow the accompaniment of people with disabilities in outdoor activities such as trekking, cycle tourism or other sporting activities. In this way it is guaranteed that those who wish can choose where to spend their free time based on personal desires and not only on the level of accessibility of one place compared to another.	

21	www.tecnoacademy.it	Italy			1-hour online course	Designing an "accessible" hotel room, an "accessible" beach or an "accessible" swimming pool does not only mean taking the rules into account, but addressing disabled people directly to guarantee a high-level guest experience .Disabled people must be able to fully enjoy not only the structure, but everything that is a "holiday": taking a boat ride, going to dinner at a restaurant, visiting museums and artistic beauties near the tourist destination chosen for the holiday. In this lesson Roberto Vitali provides useful information on how to design tourist areas from a functional point of view (hotel rooms, bathrooms, receptions, bathing establishments and swimming pools).Following the planning part, the lesson focuses on the importance of training the staff working in the accommodation facility.	https://www.tecnoacademy.it/corsi/corso-il-turismo-accessibile-a-tutti/
22	https://learning.abilityadvisor.eu/	Europe	TAD introduces the professional profile of an "Ability Advisor" who will help Small and Medium-sized Enterprises (SMEs) in the tourism field to develop their business and improve their services for the accessible tourism market.	Website with six modules for tourism SMEs on learning how to deal with PRM/ in 4 languages		"The Ability Advisor" a course to prepare advisors in accessible tourism; making tourism accessible for all visitors, including those with disabilities or specific access requirements.	https://learning.abilityadvisor.eu/introduction/
23	www.iata.org	global	Airline cockpit and cabin crew; operational staff; ground handling staff: check in/ gate agents	online course	1-hour online course	Upon completing this course you will have the skills to: Recognize why it is so important to deliver the same level of service to all your customers; Appreciate the different ways in which someone with a disability may experience air travel; Know what your customers with disabilities want from you; Feel confident to ASK FIRST and assist any customer who may need additional assistance	https://www.iata.org/en/training/pages/accessible-travel-ask-first/
24	https://www.keroul.qc.ca/	Canada	Training guides for accessibility	live and online courses for travel agents and front office staff		Whether your company or association is looking for customer service training for customers with disabilities, personalized support for a small number of employees or users, or a conference for a larger group as part of a corporate activity, Kéroul offers a range of services that will meet all your needs.	https://www.keroul.qc.ca/en/training-programs-and-conferences.html

Annex 6: Overview of TVET courses including PRM modules

name	Country	type	EFQ	course	Learning outcomes/ Content addressed	Website
Summa College	The Netherlands	TVET	4	Aviation Service Provider	As an aviation service provider you work in the air or on the ground. On the plane you give passengers a pleasant journey. You give instructions and ensure that people comply with them. If you work at the airport, it involves checking in passengers and their luggage and selling tickets. You are stress-resistant, work well together and provide service with a smile. As a hostess or host you are also the airline's calling card. At school you learn about (inter)national regulations and travel documents. A lot of attention is also paid to communication and social skills. And because you deal with people from all over the world, you learn Spanish and a third language in addition to English.	https://www.summacollege.nl/opleidingen/luchtvaartdienstverlener-bol
Estonian Aviation Academy	Estonia	TVET		Aviation Management BSc for professional pilots (Commercial Air Transport Pilot, 1-year program)	principles of aviation management; operations of an aviation company; logistics, international economics, marketing, and financial and strategic planning; teamwork and communication skills; environmental ethics.	https://lennuakadeemia.ee/en
Laurentius college Schiphol	The Netherlands	TVET		Aviation & Hospitality	Stewardess, travel, and hospitality	https://www.laurentiuscollege.nl/mbo-4-opleiding-stewardess-travel-en-hospitality.html
Deletion College	The Netherlands	TVET		Aviation Service Provider	During the Aviation Service Provider training you will learn everything about checking in and guiding passengers at the airport and on the plane. Diverse cultures and languages are also discussed, because during your work you will have to deal with passengers from all over the world. You will also be responsible for security at the airport and on board. And of course you learn to deal with different passengers.	https://www.deltion.nl/opleidingen/international-aviation-services
Ege University Aviation Higher Vocational School - Civil Aviation Management	Türkiye	TVET		Sign Language-I Sign Language-II	To teach sign language used by hearing-impaired individuals and to gain the necessary skills to use the language in social life.	https://ebp.ege.edu.tr/DereceProgramlari/Ders/0/8271/274165/768160/1?lang=en-US https://ebp.ege.edu.tr/DereceProgramlari/Ders/0/8271/274157/768150/1
Isparta University Applied School, Keçiborlu Vocational School	Türkiye	TVET		Passenger Services	Limited information is shared	https://keciborlumyo.isparta.edu.tr/tr/ulastirma-hizmetleri/sivil-hava-ulastirma-isletmeciligi-12865s.html
Malatya Turgut Özal University, Akçadağ Vocational School	Türkiye	TVET		Passenger Services	Specific services for disabled passengers, specific needs	https://akcadag.ozal.edu.tr/wp-content/uploads/sites/11/2023/09/Sivil-Hava-Ulastirma-Hizmetleri.pdf

Annex 7: Overview of HEI courses including PRM modules

	name	Country	type	course	Names of modules that address PRM	Learning outcomes/ Content addressed	Website
1	Breda University of Applied Sciences	The Netherlands	HEI	BA Tourism management	Minor aviation management	A broad minor on business travel and aviation management. No specific modules on PRM, but broader on customer journey and travel experience	https://www.kiesopmaat.nl/modules/nhtv/AT/142947/
2	Amsterdam University of Applied Sciences	The Netherlands	HEI	B.Sc.. Aviation engineering	Nonvisible	Air Transport Management focusses on transporting people and cargo from A to B, such as Aviation Logistics and Air Transport Development. Aviation Engineering and Technology focuses on the technical aspects of the airplane, such as Flight Operations and Maintenance, Repair & Overhaul.	https://www.amsterdamuas.com/aviation
3	Erzincan Binali University, Ali Cavit Çelebioğlu School of Civil Aviation	Türkiye	HEI	BSc. in Aviation Management	*Passenger Services and Applications *Passengers requiring special services *Social responsibility and ethics in marketing	1. 'Ground Handling course includes 'Passenger Services and Applications' topic which address the special needs of passengers 2. Passenger Service course includes 'Passengers requiring special services' 3. Marketing Principles and Management course covers 'Social responsibility and ethics in marketing' topics.	https://obs.ebyu.edu.tr/oibs/bologna/index.aspx?lang=en&curOp=showPac&curUnit=21&curSunit=375#
4	İskenderun Technical University, Faculty of Aeronautics and Astronautics	Türkiye	HEI	BSc. in Aviation Management	Special service requirements, Endorsement procedures, Flight disruptions	Ground Handling Management course covers Special service requirements, Endorsement procedures, Flight disruptions	https://obs.iste.edu.tr/oibs/bologna/index.aspx?lang=en&curOp=showPac&curUnit=56&curSunit=5705#
5	Istanbul Rumeli University, Faculty of Economics	Türkiye	HEI	BSc. in Aviation Management	Categories of the passengers, ground handling at airports, interpersonal communication	Passenger service course covers these topics	https://obs.rumeli.edu.tr/oibs/bologna/progCourseDetails.aspx?curCourse=112457&lang=tr

6	Eskişehir Technical University, Faculty of Aeronautics and Astronautics	Türkiye	HEI	BSc. in Aviation Management	1. Ground Handling Management I 2. Passenger Handling Services I 3. Ground Handling II 4. Passenger Handling Services II	1. Passenger Services Training Passenger Acceptance (Check-in) Transactions Introduction of Travel Documents Travelers with Special Interest and Service Needs Luggage Transactions 2. Passengers who require special service, Handling, and transfer of disabled passengers 3. Operation and Transfer of Disabled Passengers: Introduction of disabled passengers: Physically disabled passengers, mentally handicapped passengers, other situations (passengers whose mobility is restricted due to chronic diseases, old age, etc.), Disabled passengers with limited mobility, Points to consider when handicapped passengers are admitted to the flight Introduction of wheelchairs / Checks before wheelchair use, Handling of wheelchair during transfer of disabled / sick passenger / Assisting removal of toilet needs / Removal of passenger from wheelchair / Transfer of wheelchair / disabled passenger from two persons, Introduction of walking equipment, Issues to be taken into consideration when accepting passengers with disabilities, Psychological factors to be considered when accompanying disabled passengers, Points to note when using patient transport device (MEDCAR-Ambulift), Taking the mobility restricted passenger (PRM) to the platform of the vehicle, Removing the rear platform, Transportation of the passenger in the vehicle, Fixing the wheelchair / passenger in the vehicle Use of companion seats,, MEDCAR's approach to aircraft, Transfer of the traveller to the next flight; Ramp Safety and Apron Rules: General information, Introducing Signals	https://akts.eskisehir.edu.tr/en/ders/icerik/159502/48 https://akts.eskisehir.edu.tr/en/ders/tanitim/159518/47 https://akts.eskisehir.edu.tr/en/ders/tanitim/159530/47 https://akts.eskisehir.edu.tr/en/ders/icerik/159528/48
7	Özyeğin University, Faculty of Aviation and Aeronautical Sciences	Türkiye	HEI	BSc. in Aviation Management	Comprehend passenger convenience and level of service (LOS) criteria and its? Importance for the terminal design	Participant mentioned the Airport Strategic Planning and Design course that address accessibility but in the curriculum there are also Ground Handling Management, Sustainability in Aviation, Diversity, Equity, and Inclusion in Aviation courses which touches these topics limited.	https://sis.ozyegin.edu.tr/OZU_GWT/doc/8330007759799635&webdata=2BC77BC2C0C503F8DEB5E7214E7561CCAEBF7A909B0B6C972DE9A41E312F0FEBAA340BF55D80F3A79F5BD299DEE0B1E6
8	Özyeğin University, Faculty of Aviation and Aeronautical Sciences	Türkiye	HEI	B.Sc. in Professional Flight	Nonvisible	*Crew resource management (mandatory) in the 4th year that includes some training of communication in the cockpit and in cabin. *Operation procedures course (elective) that includes recommended behaviour by pilot towards passengers. In this case guest captains are invited to share their experiences in the class. -In both cases training for interaction with passengers is generic for all type of passengers and there is not any specific for PASR	https://sis.ozyegin.edu.tr/OZU_GWT/doc/8440007783710668&webdata=4C6676E019ABB36D2E2961DD83537570C8176B7F764D751B0067A5C76CBD99D17EA5F83EE4523D6A0C8A72778C5894F2 https://sis.ozyegin.edu.tr/OZU_GWT/doc/8330007759807827&webdata=4C6676E019ABB36D2E2961DD8353757051E2C84C96989D8A998D4CB08E8A982BDB23FC0D4E764C7B6EFF22BBD978D917

9	Özyeğin University, Faculty of Applied Sciences	Türkiye	HEI	BSc. in Hotel Management Department	Nonvisible	Rooms Division Management and Technologies Hospitality law	https://www.ozyegin.edu.tr/en/hotel-management/undergraduate-bsc-program/curriculum
10	Kırklareli University Faculty of Aeronautics and Astronautics	Türkiye	HEI	BSc. in Aviation Management	Nonvisible	Corporate Social Responsibility	https://hub.klu.edu.tr/dil/en
11	Tarsus University, Faculty of Aeronautics and Astronautics	Türkiye	HEI	BSc. in Aviation Management	Categories of the passengers	PASSENGER HANDLING SERVICES I PASSENGER HANDLING SERVICES II	https://havacilikyonetimi.tarsus.edu.tr/Files/ckFiles/havacilikyonetimi-tarsus-edu-tr/DersIcerikleriENG.pdf
12	Süleyman Demirel University, School of Aviation	Türkiye	HEI	BSc. in Aviation Management	N/A	Ground Handling	https://sis.sdu.edu.tr/oibs/bologna/index.aspx?lang=en&curOp=showPac&curUnit=62&curSunit=6201#
13	Samsun University, School of Aviation	Türkiye	HEI	BSc. in Aviation Management	Nonvisible	Passenger service course covers services that should be provided for various categories such as pregnant passengers, infants, young children, etc., from the start of the flight to the process after arrival at the airport	https://havacilikyonetimi-en.samsun.edu.tr/
14	Kastamonu University, School of Aviation	Türkiye	HEI	BSc. in Aviation Management	Nonvisible	Ground Handling course and Passenger Services course covers limited topics for the special needs P.S. I realized that there is Social Impact Projects course, and the content is "The aim is to engage students in a social project by utilizing their knowledge and skills. Some examples of projects organized during after-school hours include assisting students, assisting people in elderly homes, disabled care centers and orphanages, conducting tree planting activities, raising environmental awareness and so on. The goal is for students to participate in meaningful community service projects that enrich people's lives"	https://havacilik.kastamonu.edu.tr/images/Course_Content.pdf
15	Muğla Sıtkı Koçman Üniversitesi, Dalaman School of Aviation	Türkiye	HEI	BSc. In Tourism Management	Nonvisible	Passenger service course services and communication with disabled pax.	https://dalamanhy.mu.edu.tr//

16	Vrije Universiteit Brussel	Belgium	HEI	Master in Management of Tourism Sector		Accessibility is addressed in two courses of the ULB's 'Master en Sciences et Gestion du tourisme,' including Tourism management and Cultural issues in Tourism. Currently the approach aims to raise students' awareness more than to have them develop advanced knowledge and skills in the matter. The teaching staff also encourages students to work on accessibility on an individual basis, including it as a topic of theses, internships, and real-life projects. In the year 2020-2021 accessibility is the focus of two theses, two internships and one real-life project	https://www.ulb.be/en/programme/ma-tour
17	IN Tour Project	Germany	HEI			Despite a number of existing Bachelor's and Master's degree programmes in tourism, there is almost no evidence of modules on inclusion or accessibility. Only one Bachelor's programme "Business Administration/International Tourism" at the Berlin School of Economics and Law mentioned "accessible tourism" in the course content. However, no further information on this course content can be found to determine what exactly is taught. We found several modules on "sustainable tourism" (here is sustainability, then social sustainability, then CSR relevant), but even for courses with CSR it is difficult to see what is directly behind it in terms of content.	-
18	IN Tour Project	Greece	HEI			The course "Tourism and accessibility" explores the accessible tourism that enables all people to participate in and enjoy tourist experiences on equal terms. The accessible tourism aims to make it possible and / or to facilitate access to tourist destinations, products, and services to all people, regardless of physical disabilities, or age. Accessibility concerns both public and private tourism locations, facilities, and services. From idea to implementation, one travel is usually related to many factors, such as access to information, covering distances of various kinds, local transport, accommodation, access to archaeological and museum sites, access to shops and in dining and leisure areas.	https://tourism.ionio.gr/en/news/search/
19	www.emagister.com	Spain	HEI			Course objective: Course objectives: Train an expert capable of offering a precise definition of accessible tourism and the necessary conditions it requires, linking the concepts of accessibility and quality, since quality in tourism is what "must allow any client obtain services and participate in safety, comfort, and autonomy activities	https://www.emagister.com/experto-turismo-accesible-cursos-2774519.htm

Annex 8: Staff aviation survey instrument

Survey – (Disability Awareness Skills) Remove the following: Customer Service Skills towards air passengers with reduced mobility.

Start of Block: Initial Statement

Before you proceed to the survey, please see a drop-down menu above with a choice of languages. Select your preferred language to participate and press the '>' button to begin the survey.

Bevor Sie mit der Umfrage fortfahren, finden Sie oben ein Dropdown-Menü mit einer Auswahl an Sprachen. Wählen Sie die gewünschte Sprache für die Teilnahme und drücken Sie die Taste '>', um die Umfrage zu starten.

Prima di procedere al sondaggio, consulta il menu a tendina per scegliere la lingua in cui compilare il questionario. Seleziona la lingua preferita per partecipare e poi premi il pulsante '>' per iniziare il sondaggio.

Antes de completar la encuesta, por favor abra el menú desplegable con la selección de idiomas. Seleccione su idioma preferido para participar y presione el botón '>' para comenzar la encuesta.

Alvorens te beginnen met de vragenlijst, willen wij u vragen om uit het drop-down menu hierboven een taal te kiezen. Selecteer de door u gewenste taal en druk vervolgens op de '>' knop om met de vragenlijst te starten.

Mielőtt elkezdené kitölteni a kérdőívet, kérjük válassza ki az alábbi legördülő menüből az Önáltal preferált nyelvet, amelyen részt szeretne venni a felmérésben, majd kattintson a '>' gombra a kérdőív megkezdéséhez.

End of Block: Initial Statement Start

of Block: Information page.

INCLAVI is an EU funded project involving several partners m aiming to address solutions for identified skills gaps related to the experience of **air travellers with special assistance needs**.
We kindly invite you to contribute to this project by participating in this questionnaire to assess current skills shortages and future training needs in relation to the customer journey of air travellers with special assistance needs. The questionnaire comprises 20 questions and will take approximately 12 minutes. This survey has received the approval of the Ethics Committee of the Project INCLAVI and data are safely stored at Haaga Helia University.
Declaration: *I understand that my participation in this project will involve completing a questionnaire that will take approximately 12 minutes. I understand that participation in this study is voluntary and anonymous and that I can withdraw by not submitting the response.*
Thank you very much for your time!

O If you are 18 years of age or over, understand the statement above and consent to participate in this study, please tick the consent box to proceed. (1)

Section 0 – General information

Q1 Please indicate what service you provide to air travellers:

- O Booking flights (1)
- O Booking holiday packages (2)
- O Transportation from/ to airport (3)
- O Customer service (4)
- O Assistance at airport (5)
- O Airport ground handling services (6)
- O Airport check-in (7)
- O Airport boarding service (8)
- O Airport border control operations (9)
- O Airport security check points operations (10)
- O Retail and shopping services (11)
- O Airport maintenance and cleaning services (12)
- O Flight services: pilots (13)
- O Flight services: cabin crew (14)
- O Other (15) name: _____

Q2 What is your **level of responsibility**?

- O Operational staff (1)
- O Supervising small teams (up to 10 persons) (2)
- O Supervising medium sized teams (up to 50 persons) (3)
- O Supervising large teams (> 50 persons) (4)

Section 1 – Generic Social skills

This section is about *social skills* related to general behavior and practical skills such as attitude, interpersonal communication, understanding with different cultures, and dealing with diversity of people. In this survey, these skills have been divided into 3 types: personal skills, communication/cultural skills, and diversity skills.

Q3 Please rate the current level of your proficiency in the following **personal** skills, on a scale from 1 (no skills present) to 5 (expert)?

1	2	3	4	5
Problem solving	O	O	O	O	O
Initiative and commitment for your job	O	O	O	O	O
Customer orientation	O	O	O	O	O
Ethical conduct, respect for others	O	O	O	O	O
Willingness to change.	O	O	O	O	O
Promoting a positive work environment	O	O	O	O	O
Coming up with solutions and new ideas	O	O	O	O	O
Willingness to learn.	O	O	O	O	O

Q4 Please rate your current level of expertise in **communication and cross-cultural** skills in your own language, on a scale from 1 (no skills present) to 5 (expert)?

1	2	3	4	5
Written communication skills	O	O	O	O	O
Oral communication skills	O	O	O	O	O
Non-verbal communication skills	O	O	O	O	O
Ability to listen to others.					
Understanding of different cultures	O	O	O	O	O
Ability to speak foreign languages (other than your native language)	O	O	O	O	O

Q5 Please give your opinin on how **you** are prepared on the following **customer diversity topics,** on a scale from 1 (completely unprepared) to 5 (fully prepared)?

1	2	3	4	5
Gender equality and inclusion	O	O	O	O	O
Staff skills for age-related assistance needs	O	O	O	O	O
Staff skills for diets and allergy needs	O	O	O	O	O
Staff skills for (mental /physical) special assistance needs	O	O	O	O	O
Staff skills related to diversity in religious beliefs.	O	O	O	O	O

Q6 Have you ever received any **social skills training** (internally or externally provided)?

O Yes (1) name: _____

O No (2)

Display This Question:

If does your organisation provide any social skills training for its employees Yes

Q7 What method of training in **social skills** would you prefer? *(more than one answer possible)*

☐ On the job (1)

☐ Online course (2)

☐ One day on-site training by external provider (3)

☐ Several days on-site training by external provider (4)

☐ One day off-site training by external provider (5)

☐ Several days off-site training by external provider (6)

☐ Apprenticeship (7)

☐ Vocational training (8)

☐ Higher education (9)

☐ Other (name): (10) _____

Section 2 – Special assistance needs
This section is about your ability to attend air travellers with **special assistance needs**.

Q8 Please rate **your personal expertise** in the following skills on a scale from 1 (no skills present) to 5 (expert)?

1	2	3	4	5
Ability to **understand** special assistance needs of air travellers.	o	o	o	o	o
Ability to **solve requests** of air travellers with special assistance needs.	o	o	o	o	o
Ability to **communicate with** air travellers with special assistance needs.	o	o	o	o	o
Ability to **find information** for air travellers with assistance needs.					

Q9 Please rate **your personal expertise** in the following skills on a scale from 1 (no skills present) to 5 (expert) when serving air travellers with **physical, sensory (using the senses like hearing or visual impairment), invisible (like ADHD and allergies) or learning disabilities**?

1	2	3	4	5
Ability to **understand** needs of air travellers with physical, sensory, invisible, or learning disabilities.	o	o	o	o	o
Ability to **solve requests** of air travellers with physical, sensory, invisible, or learning disabilities.	o	o	o	o	o
Ability to **communicate** with air travellers with physical, sensory, invisible, or learning disabilities.	o	o	o	o	o
Ability to **find information** for air travellers with physical, sensory, invisible, or learning disabilities.					

Q10 Please rate **your personal expertise** in the following skills on a scale from 1 (no skills present) to 5 (expert) when serving air travellers with **mental health problems**?

1	2	3	4	5
Ability to **understand** needs of air travellers with mental health problems.	o	o	o	o	o
Ability to **solve requests** of air travellers with mental health problems.	o	o	o	o	o
Ability to **communicate** with air travellers with mental health problems.	o	o	o	o	o
Ability to **find information** for air travellers with mental health problems.					

Q11 Please rate **your personal expertise** in the following skills on a scale from 1 (no skills present) to 5 (expert) when serving air travellers with **cognitive impairments, (like Alzheimer disease and dementia)**?

1	2	3	4	5
Ability to **understand** needs of air travellers with cognitive impairments.	o	o	o	o	o
Ability to **solve requests** of air travellers with cognitive impairments.	o	o	o	o	o
Ability to **communicate** with air travellers with cognitive impairments.	o	o	o	o	o
Ability to **find information** for air travellers with cognitive impairments.					

Q12 Please rate **your personal expertise** in the following skills on a scale from 1 (no skills present) to 5 (expert) when serving air travellers with **mobility aids or walking difficulty**?

1	2	3	4	5
Ability to **understand** needs of air travellers with mobility aids or walking difficulties.	o	o	o	o	o
Ability to **solve requests** of air travellers with mobility aids or walking difficulties.	o	o	o	o	o
Ability to **communicate with** air travellers with mobility aids or walking difficulties.	o	o	o	o	o
Ability to **find information** for air travellers with mobility aids or walking difficulties.					

Q13 Please rate **your personal expertise** in the following skills on a scale from 1 (no skills present) to 5 (expert) when serving air travellers with **hearing disabilities**?

1	2	3	4	5
Ability to **understand** needs of air travellers with hearing disabilities.	o	o	o	o	o
Ability to **solve requests** of air travellers with hearing disabilities.	o	o	o	o	o
Ability to **communicate with** air travellers with hearing disabilities.	o	o	o	o	o
Ability to **find information** for air travellers with hearing disabilities.					

Q14 Please rate **your personal expertise** in the following skills on a scale from 1 (no skills present) to 5 (expert) when serving air travellers who are **blind or partially sighted**?

1	2	3	4	5
Ability to **understand** needs of air travellers who are blind or partially sighted.	o	o	o	o	o
Ability to **solve requests** of air travellers who are blind or partially sighted.	o	o	o	o	o
Ability to **communicate with** air travellers who are blind or partially sighted.	o	o	o	o	o
Ability to **find information** for air travellers who are blind or partially sighted.	o	o	o	o	o

Q15 Please rate **your personal expertise** in the following skills on a scale from 1 (no skills present) to 5 (expert) when serving air travellers with **language impaired speech**?

1	2	3	4	5
Ability to **understand** needs of air travellers with impaired speech.	o	o	o	o	o
Ability to **solve requests** of air travellers with impaired speech.	o	o	o	o	o
Ability to **communicate with** air travellers with impaired speech.	o	o	o	o	o
Ability to **find information** for air travellers with impaired speech.	o	o	o	o	o

Q16 Please rate **your personal expertise** in the following skills on a scale from 1 (no skills present) to 5 (expert) when serving air travellers with **a service dog**?

1	2	3	4	5
Ability to **understand** needs of air travellers with a service dog.	o	o	o	o	o
Ability to **solve requests** of air travellers with a service dog.	o	o	o	o	o
Ability to **communicate with** air travellers with a service dog.	o	o	o	o	o
Ability to **find information** for air travellers with a service dog.					

Q17 Does your organization provide any **training** for its employees in serving air travellers with special assistance needs (internally or externally provided)?

O Yes (1) name: _____

O No (2)

Display This Question:

If does your organisation provide any training for its employees... Yes

Q18 Did this training improve your skills in working with air travellers with special assistance needs?

O Yes (1) explain: _____

O No (2)

Q19 What methods of **training** in serving air travellers with special assistance needs would you like to receive? *(more than one answer option possible)*

☐ On the job (1)

☐ Online course (2)

☐ One day on-site training by external provider (3)

☐ Several days on-site training by external provider (4)

☐ One day off-site training by external provider (5)

☐ Several days off-site training by external provider (6)

☐ Apprenticeship (7)

☐ Vocational training (8)

☐ Higher education (9)

☐ Other (name): (10) _____

Q20 If you would like to be informed about or support future initiatives in the INCLAVI project, please enter your email below. This information will not be shared with third party organizations.

O No, that is not necessary (1)

O Yes, I would like to be informed in the future, my email is: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ (2)

Annex 2: Milestone document 10

Stakeholder and user insights

INCLAVI (INCLUSIVE AVIATION)

Co-funded by the European Union

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Prepared by
Breda University of applied sciences

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Executive summary

This document represents the first milestone reached by Work package 2 within the INCLAVI project. The overall objective of this work package is to *develop policy recommendations for the air transport sector and relevant EU disability initiatives.*

These recommendations should be based on:

- *an extensive review of the existing barriers that Passengers with Disabilities PwDs or Passengers with Reduced Mobility (PRMs)*[1] *face* as part of their passenger journey and
- *the existing training in the industry, HEI and VET* that enable aviation professionals with skills required to work with PRMs.

The general aims of INCLAVI Work Package 2 are:

1. To gather latest insights into the current state of affairs in the training and education of aviation professionals, both in the industry, HEI, and VET, i.e. the scope and nature of contents used to address the topics of inclusivity and accessibility, the methods and pedagogical approaches, the digitalisation of education.
2. To gather latest insights into the current state of affairs in the aviation industry from the point of view of accessible travel, i.e. it is standards, actual practices, development needs, existing and in-the-making solutions, stakeholders,' and users' insights.
3. To identify skills mismatches that will form the basis for the creation of training modules for INCLAVI curriculum.

In this document the focus is on the second aim of the work package: the current state of affairs in the aviation industry related to accessible travel. The report is divided into seven chapters. The first part (chapters 1-4) focuses on existing **literature and studies** and includes an overview of key concepts related to accessibility and secondary data concerning accessible aviation and travel. This first part provides a background overview, especially relevant for readers and designers of learning materials, which have no background in the various typologies of travellers and their constraints.

The second part (chapter 5 and 6: **primary data from passengers, aviation and education experts)** presents the results of an extensive set of primary data collected, for which two key methods have been used:

- A survey to aviation staff (135 responses) in the five countries of project implementation (Turkey, Spain, Belgium, The Netherlands, and Finland);
- A total of 125 interviews with PRMs, professionals in aviation and experts in education that work with or for PRMs;

The interview guide used for these interviews, as well as the survey questionnaire are included in the annexes. The results of the primary data collection are presented by each stage of the passenger journey. In this part, more detailed practical insights are included as well as reference to best practices that are relevant for the design of curriculum of INCLAVI.

The last chapter of the report contains conclusions and recommendations that result from the data collected, in relation to relevant touchpoints, jobs and occupations in the customer journey. These conclusions will be used to design the **policy recommendations** deliverable, which is an important outcome of this WP.

[1] The original term used in the proposal was Passengers with Disabilities (PwDs). It has been replaced in all deliverables with PRMs, since that is the term used by aviation industry and mostly recognized in training programmes.

Contents

Abbreviations

AGM	Annual General Meeting
BUas	Breda University of Applied Sciences
ENAT	European Network of Accessible Tourism
EU	European Union
HEI	Higher Education Institution
IATA	International Air Transport Association
INCLAVI	Inclusive Aviation
ICT	Information and Communication Technology
PRM	Passengers with Reduced Mobility
PSAR	Passengers with Special Assistance Requirements
PwD	Passengers with Disabilities
TVET	Technical Vocational Education and Training
UN	United Nations

1 Inclusivity and Accessibility[2]

The term 'inclusive' is mostly used as a reference to the concept of social inclusion, meaning forms of integration of the individual in interpersonal and social contexts (Ikäheimo, 2009). In a broader perspective, as mentioned by Felder (2018), inclusion refers to "belonging", being incorporated (from the Latin verb includerer = to enclose). Therefore not only referring to positive forms of belonging, but also to negative meanings such as being a captive or a prisoner. Chennat (2019, p. 39), states that "inclusion is a way of implementing the democratic principles of equality and justice with acceptance and conviction so that every individual of the group feels accepted, valued and safe. An inclusive community respects differences among its members and embraces the means of enhancing the well-being of every member of the community."

The implementation of these principles requires society's frameworks such as laws, regulations, and norms. They play a crucial role in creating the conditions to implement inclusivity, by determining the degree of people's freedom in their participation and inclusion in the social life (Felder, 2018). The rights granted by national and international legislation (one important piece being the UN Convention for the Rights of Persons with Disabilities, UNCRPD) play an active role in allowing a concrete application of inclusivity principles. These frameworks aim to contribute to an inclusive society, whereby "people experience a sense of belonging, they are accepted for who they are within their communities and have valued roles in the community, and they actively participate in the community, involve in activities based on their personal preferences, have an active social life and enjoy social relationships with those whom they choose" (Chennat, 2019).

Ensuring accessibility is as a necessary step for an inclusive society. Accessibility is commonly known as the quality of being easily approached, reached, entered, spoken with, used, or understood, for everyone including people with disabilities (Chadha, 2023). Geurs and van Wee (2004) mentioned how accessibility is conceptually used across various scientific fields, such as transport, architecture, urban planning, health and medicine, education, geography, or tourism. Therefore it also plays a key role in policy making.
Accessibility has been defined and operationalised in several ways, and thus has taken on a variety of meanings. These include well-known definitions as the potential of opportunities for interaction' (Hansen, 1959), the ease with which any land-use activity can be reached from a location using a particular transport system' (Dalvi and Martin, 1976), the freedom of individuals to decide whether or not to participate in different activities' (Burns, 1979) and the benefits provided by a transportation/land-use system' (Ben-Akiva and Lerman, 1979), to name but a few.

2 Sustainable aviation

Aviation is crucial for society and the economy, playing a significant role in facilitating international trade and social exchange worldwide. As a major driver of globalization, it has a significant impact on economic development. Prior to the COVID-19 pandemic, the air transport industry was valued at more than USD 1.3 billion, with direct, indirect, and induced

[2] Parts of this chapter were included in a separate literature review paper, as developed by INCLAVI colleagues of Özyeğin University.

effects totalling approximately USD 1 billion. The industry provided 11.3 million direct jobs and transported approximately 4.5 billion passengers annually (ATAG, 2020).
Air transport is vital for human connectivity, being essential not just for leisure and business travel, but also for global economic integration. Although it is crucial to comprehend the significance of these statistics in tracing the growth of the industry, the focus should be on anticipating the progress of the sector in the future concerning sustainable aviation.

In recent years, there has been a growing emphasis in the aviation industry on environmental sustainability (Walls and Wittmer, 2022). Airlines and other stakeholders are recognizing the need to reduce the negative impact of aviation on the environment and are implementing various measures to address this issue.
While environmental sustainability is a key focus in the aviation industry, social sustainability is equally important consideration. Social sustainability in aviation involves ensuring that the benefits of air travel are accessible and equitable to all members of society, regardless of their socio-economic background or physical ability. This is achieved through initiatives such as investing in infrastructure and technology to improve accessibility for disabled passengers, implementing policies to address labour rights and working conditions for aviation workers, and promoting tourism and cultural exchange in a way that respects local communities and their values.

By focusing on social sustainability, the aviation industry strives to contribute to creating a more equitable and inclusive society (Dimitriou and Sartzetaki, 2019). In particular, the aviation industry aims to address the important social issues of inclusivity and accessibility. It does so in multiple ways. For example, the airlines have made significant improvements to ensure that passengers with disabilities have access to the same level of service as other passengers (e.g. providing wheelchair assistance or accessible lavatories). They are also ensuring that their workforce is diverse and inclusive by actively recruiting and hiring people with disabilities and other underrepresented groups.
Airlines are providing training to their employees to help them better understand the needs of passengers with disabilities and how to provide the best possible service. This includes training on how to assist passengers with mobility issues, visual and hearing impairments, and other disabilities. Equally important, airlines are also working to accommodate the diverse cultural and religious needs of passengers, by providing halal or kosher meals, or prayer rooms.

While focusing on the need for sustainable business models for inclusive growth, Schoneveld (2020) points out the limits of what public intervention can achieve in the post-liberalization era, determining the need to challenge the private sector to contribute more proactively towards an inclusive society. The author recognises this approach as manifested in the Post-2015 Development Agenda from which the Sustainable Development Goals (SDG) were defined. In this Agenda, society as a whole, including businesses, governments and civil society are seen as equally responsible for a sustainable path forward (Scheyvens et al., 2016).
IATA (International Air Transport Association) is the major stakeholder in the global aviation industry that represents 166 airlines in the EU and leads the changes that the industry is undertaking.

The agenda of diversity and inclusion is one of the cornerstones of IATA's legacy and future endeavours, and it makes part at various degrees of all IATA's core activities. By way of example, in 2019, the IATA Annual General Meeting (AGM) endorsed a decision to demonstrate the dedication of IATA member airlines to ensure safe, dependable, and respectful travel for individuals with disabilities. With the resolution, airlines have reiterated their commitment to enhance accessibility in air transport and have urged countries to collaborate with the air transport industry when forming policies about accessible air travel.

The resolution is built on strong fundamental principles that endorse a consistent, worldwide approach to air travel for passengers with disabilities, prioritizing consultations, coordination, and communication between all stakeholders involved in enabling accessible travel. This pledge by the industry to do the right thing is only the start, and IATA's role is to guide the air transport industry toward implementing this commitment through specific actions that benefit all people, with or without disabilities.

Disability inclusion cannot be achieved through the individual efforts of various stakeholders such as governments, airlines, and airports. They need to work together in a partnership, incorporating this approach in their accessibility policies and programmes. The primary focus, however, must always be on individuals with disabilities, in order to strike a balance between the needs of passengers and the practicality of how airlines and airports provide their services. This collaborative approach will also promote safety in the air transport industry.

Increasing opportunities to travel are often linked to unavoidable challenges in terms of sustainability and environmental impacts. Nevertheless, travelling can broaden people's mind by exposing travellers to places, people and perspectives that would not be encountered without travelling (Scheyvens & Biddulph, 2017) and tourism has the potential to enhance people's quality of life and life satisfaction (Gillovic & Mcintosh, 2020). Nonetheless, tourism has often been positioned by scholars as exclusionary towards individuals and groups at the margins of society, highlighting the need to address the industry's lack of accessibility, which is contributing to social inequality (Gillovic & Mcintosh, 2020).
In this perspective, initiatives to make travel more inclusive are regarded as attempts to improve the quality of human interactions (Scheyvens & Biddulph, 2017), as accessibility ensures the development of products, services and environments that allow everyone to use and derive benefit from them. Inclusivity, on the other hand, refers to products and services that are not only accessible but appealing to use and make people feel valued and 'included.' The view that travel should be available for all and inclusive rather than exclusive, underpins calls for tourism to also be made available to, for example, people with limited income, different disability types or seniors (Darcy et al., 2020). However, there is a growing focus on providing facilities for people with physical, or mobility disabilities, while other disability categories, including people with sensory impairments, have been ignored (Asadi-Shekari et al., 2013).

3 Persons with Disabilities in Aviation and their barriers

The United Nations Convention on the Rights of Persons with Disabilities (United Nations, 2006) recognizes that people with disabilities have the right to access all services available to citizens including tourism. It also promotes the active inclusion of people with disabilities, and

the 2030 Agenda that recognizes their important contribution to sustainable development (United Nations, 2015). It defines disability as "[persons] who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others" (United Nations, 2006).

INCLAVI interprets accessibility and inclusion as essential in enabling the independent participation of Passengers with Reduced Mobility (PRMs), for example, in air travel and at the same time benefit a wide range of persons with specific access requirements, including seniors, families with small children, those with long-term health conditions and others, who travel for leisure, for business or for education.

Though the project will primarily focus on PRMs, a broader approach may be helpful to understand the key constraints and skills gaps that INCLAVI addresses. Belousova et al., (2021), introduced the concept of *"inclusive tourist"* in the context of Ukrainian aviation. They divided them into two specific sub-groups: social group (pensioners, pregnant women, large families, and others), people with disabilities (various groups of disabilities and nosologies) people with a "war syndrome" (Afghans, migrants, persons with psychological trauma, war children, war veterans and others). These emergent categories of people who have special needs or may require an assistance different from that of the 'usual' one, require further interrogation.

The term 'special needs' is an old, if not obsolete term, dating back to the medical understanding of disability. It was replaced in 2001 by the ICF (2023) referring to disability as a function of the interaction between bodily/sensory/cognitive impairment and environmental factors. It has been claimed that people do not have special needs; they have the same needs as everyone else, however they do have certain requirements that should be fulfilled in order to conduct their normal functions of daily living, including travel. Using the term 'requirements' therefore lends itself better to defining related actions and performance measurement, while 'special needs' remains vague term, open to interpretations and misunderstandings. For the same reasons, ENAT (European Network for Accessible Tourism) uses the term 'persons with specific access requirements' as this clearly communicates that they have requirements that must be fulfilled by the service providers. Within the framework of INCLAVI, project partners have agreed to use the term PRMs.

It is important to note that **access requirements** vary for different typologies of air passengers. For example, blind travelers need special signage that can help them to guide to the departure gate, whereas a passenger that requires wheelchair services wants to facilitate navigation through the airport.

ICAO's (2013) Manual on access to air transport by persons with disabilities indicates the importance of understanding the different disabilities and their diversity in order to respond adequately. Table 1 below includes an The International Civil Aviation Authority's (ICAO, 2013) list of typologies based on which are given recommends to the stakeholders to train staff that are providing services to passengers with specific requirements at all stages of their journey.

Table 1: Typologies of air passengers with specific requirements (Source: Domingo et al., 2023 based on ICAO's (2013) Manual on access to air transport by persons with disabilities)

ID	Typologies	Typology explanation
1	PSHL	physical, sensory, hidden and learning disabilities
2	MENTAL	mental health problems
3	COGNITIVE	cognitive impairments
4	MOBILITY-Aids	persons who use mobility aids
5	MOBILITY-DS	persons with walking difficulties or limitations in balance, agility or coordination that affect their mobility
6	DEAF	persons who are deaf or hard of hearing
7	VISUAL	persons who are blind or partially sighted
8	SPEECH	persons with impaired speech
9	w-ASSISTANT	persons who require assistants and the roles of assistants
10	w-ANIMAL	persons travelling with a service animal, and the role and needs of that animal

Similarly, IATA assigns several 4-letter codes of SSR (special Service Requests), a message sent directly to suppliers to communicate passenger's preferences, special services needed, or a procedural requirement necessary of the carrier[3]. They are as follows:

- DEAF: deaf passenger
- DEAF/ DUMB: a passenger is deaf-mute
- DUMB: a passenger is mute (Barska, 2020)
- WCHR: Wheelchair for ramp, passenger is unable to walk long distances and, therefore, he/ she requires a wheelchair before embarkation and after disembarkation. A person does not need help in a cabin.
- WCHS: Wheelchair for stairs, passenger is unable to ascend stairs, has an extremely limited mobility but he/she doesn't need help in a cabin.
- WCHC: Wheelchair for cabin, Passenger immobile (Barska, 2020)

In considering mobility of people with disabilities (mobility, sensory, cognitive, or mental health), attention should be paid to the experiences that people have, and which are usually uneven (Darcy, Small and Almond, 2023). Crucial here is to understand the type of disability, the degree of disability and other intersecting subjectivities. Furthermore, it is crucial to understand those who accompany these persons as it would often be the case that when a person with disability experiences a constraint in travel, it affects their travel companion as well. In the fiercely competitive airline industry, the quality of service provided by airlines to increase customer satisfaction has always been a critical concern.

Burnett and Baker (2001) suggest that it is therefore paramount to first segment the passengers with disabilities market into distinct and homogeneous groups of people with similar needs and second, to understand their needs at all stages of their journey, from travel planning, booking process to on-board experience and post-travel experience.

[3] . These codes and their recommended use are pre-defined by IATA, however, not all suppliers or providers support their use

Passengers with mobility disabilities

There has been significant research done on disabilities and air travel, often focusing on the passengers that have certain mobility impairments (Darcey, Small, & Almond, 2023). This includes people who are unable to walk long distances, are immobile, or have lower limb disabilities. For example people with orthopaedic disabilities, amputations, Amyotrophic Lateral Sclerosis (ALS), obesity, etc. (Redman Power Chair, 2022). They would often be assisted by technologies such as wheelchairs due to physical disabilities or health conditions that affect their ability to stand or walk for extended periods of time. Wheelchair users may use manual or power wheelchairs, and require accessible spaces and equipment to ensure their independence and inclusion.

Mobility-disabled air passengers require a range of services to ensure that they are able to travel safely and comfortably.

- Firstly, they may require assistance with boarding and disembarking the aircraft, including being escorted through security and customs processes.
- Once on the aircraft, they may require assistance with transferring to their seat, stowing their luggage, and accessing the lavatory facilities.
- They may also require additional legroom or seating arrangements to accommodate their specific mobility needs.
- Additionally, passengers with mobility disabilities may require assistance with accessing and navigating the airport, including wheelchair assistance and special arrangements for transportation to and from the airport.

Airlines and airports have a responsibility to ensure that they provide appropriate services to ensure that mobility-disabled passengers can travel with the same ease and comfort as other passengers.

Previous studies have looked at the experiences and challenges faced by mobility-disabled air passengers (Yates, 2007), as well as the policies and practices of airlines and airports in accommodating these passengers (Young and Wells, 2011). Some research has focused on the physical aspects of air travel, such as boarding and disembarking the aircraft (Chang and Chen, 2012; Horonjeff et al., 2010), while others have explored the communication and customer service aspects of air travel for mobility-disabled passengers (Fodness and Murray, 2007). The research highlights the importance of ensuring that air travel is accessible and accommodating for disabled passengers. It also underscores the need for ongoing research and evaluation of airline and airport policies and practices to identify areas for improvement and ensure that mobility-disabled passengers are able to travel with dignity and comfort.

Passengers with vision impairment

The World Health Organization (WHO, 2021) estimated that 2.2 billion people live with visual impairment, with 36 million being complete blind and 217 million experiencing moderate to severe visual impairment (Bourne et al., 2017). Qiao, Song and Prideaux (2023) suggest that sight loss is usually classified in the following categories: blind (total loss of sight) which can be further subdivided into acquired blindness (later in life) and congenital blindness (from birth) and, visual impairment (60 % below 20/20 vision).

It is important to acknowledge that congenital visual impairment and acquired visual impairment may impact an individual's travel experiences in distinct ways (Cattaneo et al., 2008). Those who have acquired visual impairment have experienced the world with full vision prior to their visual loss, and their perception of external information while compensating for visual deficits using other senses may differ significantly from that of individuals who were born with visual impairment and have adapted accordingly as tourists.

Although research into the tourism aspirations of people with visual impairment is limited, there have been a number of significant contributions including Small, Darcy and Packer (2012) who were among the firsts to explore how visually impaired people experience tourism, Richards et al. (2010) discussed embodied tourism encounters, inhospitable tourism spaces and navigating tourism environments, Zhang (2019) and Zhang (2019) reviewed the constraints to travel for visually impaired people, Kong and Loi (2017) investigated strategies for the creation of a barrier-free environment for visually impaired people, and Huang and Lau (2020) found that visually impaired people were generally positive about travel but desired some level of autonomy and the opportunity to socialize with other tourists.

For visually impaired tourists, significant issues that must be considered **during the travel decision-making process** include access to reliable information and concerns about transport (Zhou et al., 2019). **Accessible infrastructure** and travel companions (family, friends, guide dogs, etc.) are also important in facilitating tourism participation (Macpherson, 2016; Rickly et al., 2021; Small, 2015). For visually impaired people, having a dog can reduce access barriers enabling them to gain independence and confidence (Audrestch et al., 2015). Guide dogs also enhance mobility, facilitating a greater level of interaction with others when travelling (Audrestch et al., 2015; Rodriguez et al., 2020).

Darcy (2003) asserted that visually impaired individuals may face challenges in experiencing the visual aspects of traveling and may also encounter mobility issues, particularly when exploring unfamiliar places. However, most people with vision impairment refrain from traveling due to perceived travel constraints rather than their visual impairment. Qiao et al. (2023) explain that visually impaired individuals may instead utilize their remaining senses such as touch, hearing, and smell, to create unique travel experiences after losing their sight and compensating with sensory perception.

Even though many visually impaired people, including those with congenital impairment, cannot appreciate scenic views, they can still relish travel using other senses. Sensory replacement technology, such as cross-model feedback of hearing and touch, sensory Substitution Devices (SSDs) and electronic travel aids may can assist visually impaired individuals in experiencing the world around them and not only improve their travel experience, but also contribute to their quality of life.

Passengers with hearing impairment

People with hearing impairments are individuals who have a reduced ability to hear sounds that are audible to others. This may be due to a variety of factors, such as genetic conditions, illness, injury, or exposure to loud noise. Hearing impairments can range from mild to severe, and may affect an individual's ability to communicate, learn, and participate in social activities.

Some people with hearing impairments use hearing aids or other assistive devices to improve their hearing.
There are different degrees of hearing impairments. A hearing loss that is so profound that there is little to no functional hearing is referred to as being deaf. Hard hearing is a term used to describe a hearing loss in which there may be enough residual hearing for an auditory device to process speech.
Deafened describes someone who becomes deaf as an adult and thus encounters different difficulties than someone who becomes deaf at birth or as a young child. People who are deaf, deafened, or hard of hearing can increase their hearing by using hearing aids, cochlear implants, or other assistive listening devices. They can also use sign language, sign language interpreters, lip reading, captioning, or a combination of these techniques.

Travellers with hearing impairment often rely on attendants to explain valuable information and interact with staff while relying on the sense of touch and tactile information. Jain et al. (2019) proposes that visual communication strategies (facial expressions, body language, signing and gestures) for those with hearing impairment are crucial and should therefore be considered in communication.

Air passengers with hearing impairments use a variety of communication methods to interact with airline and airport staff, as well as other passengers. Some passengers may use **sign language** or communicate through lip-reading, written notes, or messages, or through electronic communication devices such as tablets or smartphones.

These passengers may **request the assistance of a sign language interpreter**, or they may rely on captioning or speech-to-text technologies. Some airlines and airports also provide visual or tactile alert systems to notify passengers with hearing impairments of announcements or changes in flight status. Addressing the needs of passengers with different degrees of hearing impairment, staff needs to be adequately trained to be able to effectively communicate with passengers and provide them with access to assistive technologies and other support services.

Passengers with an intellectual or developmental disability (IDD) / cognitive impairment
People with an intellectual or developmental disability (IDD) refer to individuals who have below-average intellectual functioning or limited adaptive skills that affect their daily life. These conditions often manifest during childhood and may result in difficulties in learning, communication, socialization, orientation in time and space, and self-care. IDD encompasses several conditions, including Down syndrome, autism spectrum disorder, cerebral palsy, dementia, or intellectual disability. These are often combined with other impairments, such as mobility or vision. People with IDD are not always aware of the level of their cognitive capacity and what they can or cannot manage, and may thus require additional support and services to ensure their more comfortable transitioning through all stages of the journey.

The tourism industry has experienced an emergence of ‘dementia-friendly’ destinations, attractions, or products in order to enhance the experience of the consumers (Connell and Page, 2019). Dementia is a brain disease, not a natural facet of ageing, and there are several forms, the most common of which is Alzheimer's disease. For people with dementia the

airports may pose a significant challenge, particularly in navigating through the place, hearing and understanding the announcements, checking in, or finding restrooms. During the flights, they may become agitated, or fall into delirium after longer flights. This can be further complicated by the unawareness of flight attendants about their condition and their inability to adequately serve them. Researchers have recognised that that airline industry has not paid sufficient attention to passengers with dementia (O'Reilly and Shepherd, 2016), although some airports such as London's Heathrow have declared themselves as such. For this reason, in 2016 the Gatwick Airport introduced the lanyards indicating a hidden disability, which is helpful in communicating this information about passengers.

Another example of hidden disability are epileptic seizures which are often the cause for flight diversions (Drazkowski, 2007). Although these situations are rare, passengers who have experienced a recent attack may be refused boarding or asked for a medical clearance as set out in the IATA's guidelines. It is crucial for individuals with epilepsy to consult with their healthcare provider before traveling by air to determine if they require any specific measures or accommodations during the flight. This is important because epileptic seizures can cause distress to other passengers, and taking precautionary measures can help to minimize the risk of such events occurring.

This may include adjusting medication schedules, using supplemental oxygen, or avoiding air travel altogether if the risks are too great. However, these passengers are normally accompanied by travel companion or a service dog which creates a 'safe space' for the epileptic passenger. Additionally, airlines may have specific policies and procedures in place to ensure the safety and comfort of passengers with epilepsy. For example, they can offer special seating arrangements, such as aisle seats or seats near restrooms, provide early boarding or additional time to settle into their seats before other passengers board the aircraft,

Small and Darcy (2010) noted that there has been insufficient research conducted on the travel experiences and willingness to travel of passengers who have mental health conditions. Individuals with mental health conditions may experience anxiety or fear related to flying, which can be particularly challenging in the confined space of an aircraft. Another reason passengers with mental health conditions are hesitant to travel may be that they feel that airline staff are not adequately trained or equipped to understand and support them during air travel.
It is important for airlines to understand and address these challenges to ensure that passengers feel comfortable and supported. This may involve providing additional training and support for airline staff, improving accessibility in airports and aircraft, and reducing stigma and discrimination surrounding mental health.

The overall objective of INCLAVI Project is "to develop policy recommendations for the air transport sector and relevant EU disability initiatives based on an extensive review of the existing barriers that Passengers with Reduced Mobility (PRMs) face as part of their passenger journey and the existing training in the industry, Higher Education Institutions (HEI) and Vocational Education Training (VET) that enable aviation professionals with skills required to work with PRMs".

As can be concluded, passengers with reduced mobility might experience air travel as challenging, due to difficulties in reaching the terminal, navigating the airport, boarding, and disembarking the plane, accessing in-flight services, and dealing with emergency situations. Studies have found that people with disabilities encounter several types of obstacles ranging from physical challenges (e.g. cramped seating areas and long distances withing the airports), service-related challenges (e.g. long lines at check-in counters, difficulty getting assistance with baggage, difficulty reserving preferred seats), to communication-related challenges (e.g. difficulty hearing announcements at the airport and difficulty understanding which baggage carousel to go to) (Wang and Cole, 2014; Harris Interactive Market Research, 2005). Although people with disabilities have the same needs and motivations as the people without disabilities (Qiao et al., 2021), the level of disability, psychological factors and external environment create difficulties for disabled people's participation in tourism (Yau et al., 2004).

The modern air travel supply chain does not always meet the expectations in terms of accessibility. Airport infrastructures are often complex and spread over long distances and multiple levels (Kazda & Caves, 2015, p.267), while aircraft cabins are mostly designed to maximise their capacity and efficiency. The entire literature on aviation accessibility and inclusivity focuses on the needs and requirements of Passengers with Reduced Mobility (PRMs). The physical design and configuration of airport terminals and aircraft cabins presents barriers to and inclusive and unrestricted mobility. Airport infrastructures are often complex and spread over long distances and multiple levels, while aircraft cabins are mostly designed to maximise their capacity and efficiency (Kazda & Caves, 2015).

Despite genuine and admirable commitments towards creating ‘barrier free airports’ (ACI, 2018), inclusivity and equality of access to air transport keeps being acritical operational challenge to airports and airline operators. In fact, those barriers often become sources of customer service failure and complaints that require sensible attention (Poria et al., 2010; Chang and Chen, 2012b; Ancell, 2017; Ancell and Graham, 2016). Overall, passengers with specific accessibility needs tend to have a more challenging travel experience and according to Chang and Chen (2011) this is partially due to the air transportation industry not having a full understanding of the needs of this type of passengers.
While Poria et al., (2007) point out how the flight experience can sometimes be a real barrier to a positive tourist experience, Major and Hubbard (2019) observed that people with disabilities are even discouraged from traveling by air.
According to the authors, this is not only due to physical barriers, but also because of fears of prejudices, hostility, disability stereotyping and practical issues such as ineffective communication, inaccessible seats, and inadequate boarding assistance. This is supported by Budd and Ison (2020) when remarking that travel experiences of airline passengers with mobility, sensorial and/or communicative needs are restricted not only by the physical design and configuration of airport terminals and aircraft cabins, but are also challenged by the attitudes of customer-facing staff and the global practices and regulation of air travel. The interplay of these physical, behavioural, and institutional factors severely impacts the ability to access air travel and/or its experience by passengers with special accessibility needs (Chang and Chen, 2011, 2012a; Darcy, 2012; Davies and Christie, 2017).

Smith (1987) identified three forms of travel barriers that impact on people with disabilities:

- intrinsic barriers,
- environmental barriers,
- interaction barriers.

Studies have found that the main barriers that prevent the people with disabilities from travelling were not their own physical functional level, but the external social environment and attitude of others (Darcy, 2002; Shelton & Tucker, 2005). Barriers faced by disabled persons can be described as heterogeneous with significant difference between the barriers faced by diverse groups of disabled tourists (Mckercher and Darcy, 2018).

A growing number of researchers (Darcy et al., 2020; Qiao et al., 2021) support the view that travel should be a right enjoyed by all including tourists with disabilities and seniors. In support of this view, Darcy et al. (2020) proposed that tourism products, services and environments should be designed to enable access by all tourists including those with accessible requirements (including limited mobility, vision, hearing, and cognition). Adoption of appropriate technologies offers one avenue to increase tourism accessibility (Lam et al., 2020).

Concerning types of barriers and challenges preventing air passengers with special accessibility requirements from having a pleasant and enjoyable experience, we adopt the approach proposed by ICAO (2013), that might also be used for designing a training approach. These distinguishes among:

a) **Architectural barriers**: those in public and private buildings;
b) Barriers in **transport:** those in systems and means of transport;
c) **Communication and information** barriers: any obstacle, attitude or behaviour that makes it difficult or impossible to express or receive messages and information through communication and information technology systems;
d) **Attitudinal** barriers: attitudes or behaviours that prevent or impair the social participation of the person with disability on equal conditions and opportunities with other people;
e) **Technological** barriers: those that hinder or impede the access of the person with disabilities to the technologies.

4 Customer journey of Passengers with Reduced Mobility

Airports and airlines have a legal and ethical obligation to provide accessible and inclusive services to passengers with special accessibility needs. In recent years, there has been a growing recognition of the importance of inclusive and accessible air travel, with many airports and airlines investing in accessibility initiatives, such as training staff on disability awareness and providing accessible facilities and services.

Despite progress, there is still a significant gap between expectations and experiences of air travellers with special accessibility needs and many passengers report a variety of barriers

while travelling by air, such as long wait times for wheelchair assistance, inaccessible lavatories, inadequate seating accommodations and many other issues.

Within this challenging framework, the concept of **"inclusive service design"** becomes essential in the context of air transport. Duca et al. (2022) defines inclusive design as: "related to optimization of the use of a system or a service for a user with specific needs (usually, this user is an extreme user, meaning that they have particular needs).
By focusing on extreme users, many other users with similar or lesser needs will benefit from the intended system or service so that a wider diversity of people can make easy use of it."

This means that embracing an inclusive design approach allows to design a service that will then be accessible by as many users as reasonably possible without necessarily requiring specific further adaptations for specific users. This is in line with the concept of "universal design" mentioned by Harding (2019), who observed how disability categories are overly broad (e.g., the needs of a traveller with late-onset vision loss will be different from someone born partially sighted, although their visual acuity is essentially identical).
Therefore, the primary focus of accessible travel should be on creating universal accessibility, regardless of specific category-abilities, rather than meeting the assumed needs of a certain disability type.

To create the conditions for inclusive and universal design in the context of air travel, it is essential to explore the experiences of air travellers with special accessibility needs by studying their passenger journey, to uncover challenges and barriers preventing them to have an inclusive and satisfactory air travel experience. Therefore, to structure the study we will make use of:

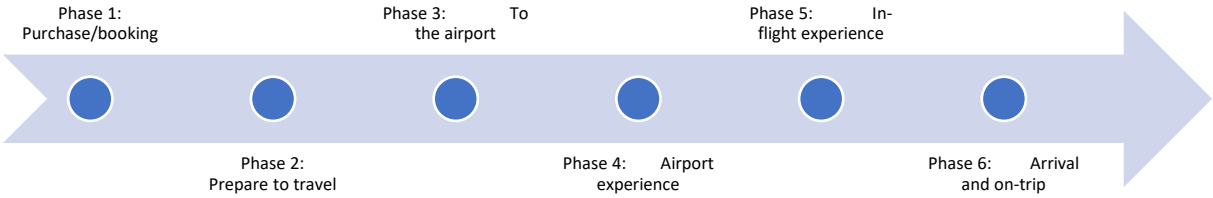
- **A passenger journey model**: to subdivide the air passengers experience in meaningful stages, each one with different means and objective, and relevant touchpoints, meaning situations in which passengers might have an interaction with one of the service providers (person-to-person, through a website, an app, or any form of communication);
- **A classification** deconstructing barriers and type of challenges that are preventing air passengers with special accessibility need from having a pleasant and enjoyable experience.

In term of passenger journey the study will make use of an adaptation of the customer journey (from now on "passenger journey") proposed by IATA (2022, p. 19), also adopted by Domingo et al. (2023). It defines 6 mains stages of the passenger journey, identifying multiple touchpoints. While adapting the model proposed by IATA (see table below), the specific objectives of INCLAVI were taken into considerations, therefore focusing on stages and touchpoints that might reveal training gaps that are affecting the experience of PRMs.

Shop & Purchase	Prepare to travel	To Airport	Airport Experience	In-flight	Arrival and On-trip
Research flight	Research destination	Transport	Check bags	Boarding aircraft	Disembarking aircraft
Purchase flight	Book other services (cars, hotels, etc.)	Parking	Security & Customs	Entertainment	Immigrations

	Arrange travel documents	IROP[1] early communication	Airport navigation	Seating and aircraft configuration	Connections
	Check-in for flights		Shop and dine	Refreshment and meals	Baggage claim
	Research additional accessibility & assistance information (airport and airline)		Wait at gate	IROP mitigation	Customs
	Pack?		IROP recovery	Toilets	Transport

When visualizing this journey it looks like this:



In the coming paragraphs, for each of these stages, an overview of literature, best practices and current state-of-the-art knowledge will be presented

4.1. Shop & Purchase

In this initial phase, passengers with special accessibility needs might a have lack of knowledge and difficulties in accessing information about the services that could be booked during the airline ticket reservation process, such as wheelchair service or seat selection (Chang & Chen, 2012). The development of online booking poses specific challenges in terms of accessibility of flight reservations. As mentioned by Lazar et al. (2010), the rising importance of the internet as the primary channel for making travel reservations has coincided with increasing security concerns and stricter airport security measures.

The combination of these two aspects has determined additional challenges for passengers with disabilities. Nevertheless, barriers in this phase might arise independently from the booking channel (e.g., online, phone, travel agent). As suggested by Chang & Chen (2012), issues in this phase can also arise when the reservation is processed via phone, for example.

Staff taking the reservation are sometimes not familiar or up to date with the current regulations for passengers with special accessibility needs and it might require some time for them to inquire about the impaired passenger's level of self-sufficiency (Chang & Chen, 2012). To prevent issues such as refusal of carriage due to safety reasons (e.g. the carrier is not able to provide safe transportation conditions to a passenger with special accessibility needs), the air carrier, their agents, and tour operators are obligated to establish **effective procedures for disabled individuals** to communicate their need for assistance during the reservation process.

This implies, for example, that tour operators' websites must provide **open text fields** where passengers can describe their disabilities in full or a contact number to convey this information. Therefore, operators should not wait for disabled persons to make "special requests", as they must take initiative-taking steps to ensure equal treatment for all passengers (Prager, 2011). Nevertheless, this proactivity can sometimes go too far and lead to issues regarding decisions taken without consultation.

Chang & Chen (2011) reported that seat selection was sometimes performed without consultation with the passenger with special accessibility needs, therefore compromising the opportunity to have assigned seats in proximity to accompanying relatives or friends.

The study of Lazar et al. (2010) stressed the urgency for international regulations to ensure accessibility of ICTs developments, such as **digital reservation channels**, to make sure people with disabilities would not be further excluded by society. Accessibility has become a crucial aspect in the digital world, as it "allows individuals with disabilities – regardless of the type of disability they have – to use ICTs, such as websites, in a manner that is equal to the use enjoyed by others" (Jaeger, 2008, p. 24). For example, a study by Goverover et al. (2010) demonstrated how people with multiple sclerosis (MS) encounter significantly more difficulties in accurately and independently completing specific tasks, such as accessing the internet to purchase airline tickets for a round trip flight, primarily due to cognitive impairment.
Duca et al., (2022) documented the requirements of applications and devices that enable the use of ICT for accessing mobility services. To mention some of these requirements:

a. use of the lower technological standards to reduce possibilities of digital divide
b. information should be accessible through personalised auxiliary tools (text-to-speech systems) and through alternative communication means (e.g., listening as alternative to reading) and
c. information should be provided with images and graphics supporting the text.

The above-mentioned challenges have been well-known over the years and specific laws and regulations were implemented along the years. Nevertheless, even recently authors reported how airline websites keep having significant usability and accessibility issues and most of them do not adhere to the WCAGs (Web Content Accessibility Guidelines) provided by the World Wide Web Consortium.

Besides challenges concerning the **reservation systems**, there are other barriers that can hinder the travel experience of PRMs, starting from the purchase phase and regarding their intention to travel. The emotional vulnerability determined by certain personal conditions of adult or child passengers with disabilities, chronic illnesses (such as ASD, Autism Spectrum Disorder) or obesity, can influence the booking decision to the point of postponing or even preventing a final decision to fly (Chiscano & Zhao, 2021; Cole et al., 2018). According to Lehto et al. (2018) this is due to perceived stress and fears for possible travel-experience constraints, as expectations about the travel experience are the key condition for the intention to travel. Davies and Christie (2017) mentioned how the majority of their respondents in their study were worried about leaving their familiar settings and having to prepare for all potential eventualities Similar barriers have an influence on the travel intentions of families with

children with special accessibility needs (Chiscano & Zhao, 2021; Karl et al., 2020). According to Karl et al. (2020), many parents even decide not to travel by airplane with their children due to their fear about their child not being able to navigate the airport and the flight experience without an unbearable level of distress.
Heng et al. (2019) pointed out barriers concerning **lack of information** and **absence of homogeneous international standards** concerning **medical clearance forms** (required by airline companies in case of certain conditions), and **difficulties to find travel insurances** at reasonable prices when being affected by certain personal conditions.

4.2. Prepare to travel

Preparation for travel can be undermined by a variety of challenges and barriers for PRMs. As for the purchase phase, the preparation to travel is affected by stress, anxiety, and fears regarding the unknown and the need to prepare for all potential eventualities, outside of the well-know familiar settings (Davies & Christie, 2018).
Additional requirements from the airline carrier might come to the attention of passengers with special accessibility needs, even after the flight reservation. Darcy (2007) reported passengers expressing frustration for being 'interrogated' after the purchase regarding their health, independence status and equipment needs. The author also mentioned low-cost airlines having introduced an 'independence criteria' based on which passengers were asked to travel with “a carer” if they would need assistance concerning various safety features, or for understanding the cabin crew, or for receiving medication.

Nowadays, digital tools and channels are crucial not only for the flight reservation, as mentioned in the previous phase, but also to retrieve all sorts of information that can support passengers in preparing and getting ready for their trip, before and after the flight. One might think about booking additional services (e.g., a transport service responding to their accessibility needs), arranging travel documents, checking-in, finding information or arranging extra services at the airport or during the flight, according to their specific needs. Therefore, also in this phase digital accessibility is paramount to ensure passengers with special accessibility needs equitable access to information and a pleasant travel experience (Jaeger, 2008; Lazar et al., 2010). Nevertheless, Budd and Ison (2020) pointed out the difficulties of identifying such relevant information online for people with special accessibility needs.

Overall, there is a significant amount of legislation regulating the type of service and the type of information that should be ensured in order to guarantee accessible air travel services. Nevertheless, Budd & Ison (2020) suggest that existing legislation mostly concerns the services that are provided within an airport and the aircraft cabin, while a comprehensive “end-to-end” journey is not really the focus of current legislation. This of course creates potential barriers between passengers with special accessibility needs and a frictionless and stress-free preparation phase.

4.3. Mobility towards Airport

The absence of a comprehensive “end-to-end” approach mentioned by Budd & Ison (2020) in the legislation and in the practices, also determines barriers and challenges in getting from their home to the airport terminal, for passengers with special accessibility needs. In this regard, a study of Duca et al. (2022) stresses the importance of an effective integration of the

air travel into an overall "multimodal mobility chain" to provide an efficient, accessible, and sustainable transport service. Multimodal mobility allows passengers to easily switch between different modes of transports along an "end-to-end" approach. In a multimodal mobility approach the design of hubs and nodes between different modes of transport plays a crucial role. Duca et al. (2022) summarise the requirements of these hubs and nodes, some of them significantly relevant for passengers with special accessibility needs. For instance:

- Accesses, entrances and turning points should be easily to be independently located according to the physical, cognitive, or sensorial abilities of passengers; if not fully accessible, assistance services should be available without pre-booking
- Long walking distances should be supported by moving aids (e.g., moving walkaways, shuttles, etc.)
- Escalators, elevators and means to overcome differences in floor heights should be available, accessible, and included in the main walking path
- Walking times should be indicated, with figures referring to a variety of passengers characteristics
- Racks and stends for personal mobility devices should be directly connected to access points

Not always those requirements are met, then determining barriers with an impact on the travel experience of passengers, especially those with special accessibility needs. Different authors examined these barriers. For instance, Chang & Chen (2012) explored the service needs of impaired air passengers and among the most cited complaints they found aspects such as the walking distance between parking lot and terminal and accessibility issues concerning lifts and ramps on their way and at the airport. Tomomi & Katsumi, (2020) highlighted the challenges determined by lack of appropriate signage and information, such as absence of signs on the map in the parking lot, lack of information on how to find disabled parking space, special vehicles route including wheelchair marks.

On another note, Chiscano and Zhao, (2021) remind how unfamiliar experiences and uncontrollable factors, such as last-minute delays and cancellations, pose additional challenges for certain categories of passenger, determining higher level of stress and anxiety that are even worse in case of special accessibility needs or certain personal conditions. Poria et al. (2009) draw attention to the fact that any change, such delays, or changes in the connecting flights timetables, has major implications for them as a flight often becomes a meticulously long-planned activity.

As a consequence of IROPs, special assistance services might then need to be rearranged and extra information (or more updated information) are required. This can be challenging while already being on the way to the airport and being busy dealing with other types of transportation barriers linked to their accessibility needs. In the end, if something goes wrong, as for example mentioned by Budd & Ison (2020), the entity towards which they should address their complaint is not always clear, as well as the potential compensation for disabled passengers for services failures. In fact, there's lack of an independent complaint handling mechanism for such situations.

4.4. Airport Experience

To some extent, passengers with special accessibility needs share similar challenges as the ones without disabilities or any particular accessibility need. Common challenging factors can be determined by time pressure and unfamiliarity with a complex airport environment, visual information overload, crowds and loud noise level, unclear information, and directional signage, making the wayfinding tasks more difficult (Qing et al., 2020). Nevertheless, special accessibility needs increase the operational complexity of the services provided, which are directly connected with the daily management practice at airports (Darcy, 2007). Multiple service providers are involved, deploying diverse types and levels of staff with a wide variety of tasks and responsibility. As Darcy (2007) mentioned, although staff is regularly involved in disability and accessibility awareness trainings, key issues can still happen. The coming sections provide further insights on barriers to having a pleasant air travel experience for passengers with special accessibility needs.

Check-in bags

There are obvious challenges regarding the transportation of heavy luggage (Duca et al., 2022) , therefore assistance and availability of special vehicles is particularly appreciated (Poria et al., 2009). Nevertheless, miscommunications can happen at the level of airline ICTs systems. When appropriate information is not adequately transferred to the systems of the check-in counter, the passenger with special accessibility needs will need to provide further explanation about their conditions or needs and might be asked to provide additional documentation before the flight (Chang & Chen, 2012). Check-in staff are usually trained to deal with these situations. Nevertheless, different subjective perceptions of the check-in staff and passengers regarding their conditions and their needs can lead to unpleasant arguments with the consequence of compromising the flight experience, the perception of the quality of the service received and the intention to fly again in the future (UK Department for Transport, 2008).

Going through security

A study examining the disability-related complaints in the US commercial aviation sector identified “security” as a critical touchpoint in the passenger journey, scoring one of the lowest levels of satisfaction among the respondents, with only boarding/disembarking scoring lower (Major & Hubbard, 2019).

Despite that, passengers with special accessibility needs seem to value the possibility of having dedicated and adequate vehicles that can take them around the airport, including through passport and security check (Poria et al., 2009). This service usually requires the passenger to go through a dedicated path, from the security check to the gate, that accompanying friends or relatives might not be authorised to join. While in several cases this does not represent an issue, certain personal conditions might determine emotional vulnerability, feeling as being separated from the cared-of ones or feeling left alone to face the unknown, leading to stress and anxiety (Davies & Christie, 2017, 2018).

Additional challenges, as reported by Lazar et al. (2010) concern cases in which prosthesis, special equipment, and assistive devices as innocuous as a mobility cane, are seen as suspicious and mistakenly identified or treated as potential security threats, leaving the passengers with negative and awkward feelings.

Airport navigation

The overall passenger's navigation through the airport poses several challenges in terms of accessibility needs. Hunter & Layton (1986) pointed out how airport terminals are mostly designed and built to host activities rather than accommodate movements. As a consequence, most air terminals present accessibility challenges, hazards, and barriers for passengers such as elderly or disable people. Their contribution might be seen as outdated, as in the last decades significant improvements have been implemented globally, in terms of airport terminal accessibility. Nevertheless their point is still valid, as even recent contributions keep stressing the need to overcome barriers in navigating airport terminals for passengers with a variety of accessibility needs (Chiscano & Zhao, 2021). As reported by Chiscano and Zhao (2021) these challenges can be of different nature and include communication barriers (inappropriate visual cues, non-adapted signage, and lack of information provision in adapted formats, making the information inaccessible), service barriers involving transport staff (inappropriate staff attitudes), and environmental barriers (primarily excessive noise and ineffective wayfinding systems).

Accessibility challenges while navigating the terminal might start from the information desk, which might be too high, making the communication difficult for people in a wheelchair (Tomomi & Katsumi, 2020). Because of different eye heights, some signage and information panels might be easy to read by standing passengers but can be not so visible to seated travellers (Qing et al., 2020). The same circumstances can make it difficult to access terminal services such as money exchange, cash machines and pharmacies, for instance (Duca et al., 2022; Tomomi & Katsumi, 2020).

Multiple contributions examined how moving between floors inside the terminal can be challenging when having special accessibility needs (Chang & Chen, 2011, 2012; Qing et al., 2020; Tomomi & Katsumi, 2020). Elevators and ramps become crucial to ensure adequate accessibility. Nevertheless, as mentioned by Qing et al. (2020), if elevators are not adequately positioned in proximity of stairs/escalators and there is no appropriate signage to indicate the path between them, switching floors becomes a challenge. Moreover, there are several reasons why elevators and ramps might temporarily be blocked, unavailable or out of order, seriously limiting their function in ensuring the terminal accessibility (Chang & Chen, 2012). According to the authors, airport authorities should also take care of placing wheelchairs or other equipment in the proximity of entrances or exits of existing ramps, to ensure an effective use by passengers in the need of them. Moreover, Tomomi and Katsumi, (2020) stressed how the absence of tactile walking surface indicators on the floor can pose serious challenges to visually impaired passengers.

To increase terminals accessibility, airports provide special transport assistance for those in the need, upon reservation of the service during the flight booking. This service is deployed, for instance, by providing an escorted wheelchair to take passengers through the passport control, security check, gate, baggage claims areas, as well as to provide assistance with their baggage. Grahn and Jacquillat, (2020) examined the operational challenges airports face to provide this service, such as lack of real-time information at an escort level, errors in wheelchair request forecasts, absence of detailed passenger information (type of need, level of impairment), and overall lack of communication between airlines and escort services. They

concluded that due to those challenges, it is difficult to maintain an adequate level of service, therefore questioning its effectiveness in ensuring airport accessibility to the passengers in need. They also argued on the difficulties to tackle those issues at a strategic level, as there seems to be a lack of historical records concerning these types of operations, resulting in the widespread impossibility to assess operational performances and identify gaps and opportunities to improve the level of the service provided. The impact of those operational struggles on the quality of the service are also visible in a study of Oostveen and Lehtonen (2018), which reported respondents complaining about unpleasant situations such as being treated as sick persons that need to be quarantined, being pushed in a wheelchair against their will, never being addressed personally and directly by the escorting staff and even being locked in a "hospital room" inside the terminal for no apparent reasons other than being wheelchair bound. In contrast, Poria et al. (2009) report cases of the same service provided through special electrical vehicles, with passengers being particularly pleased with the service.

Shop and dine

Shopping and dining at the terminal do not seem to be easy activities for passengers with special accessibility needs, although they are not among the most cited challenges in the literature. Chang and Chen (2012) reported how difficult it can be for those passengers to find barrier-free restaurants within the terminal premises. Also shopping at the duty-free appears to be limited by the inability to do that autonomously and the lack of time availability of the escorting ground staff to support passengers in those activities (Chang & Chen, 2012; Grahn & Jacquillat, 2020; Oostveen & Lehtonen, 2018).

Reaching and waiting at the gate

Most of the barriers limiting airport accessibility in the "airport navigation" phase are also relevant when passengers are approaching the gate and waiting for boarding: communication barriers, non visible signage, inappropriate staff attitude especially while being transported on mobility aids such as wheelchairs (Chiscano & Zhao, 2021; Grahn & Jacquillat, 2020; Oostveen & Lehtonen, 2018; Qing et al., 2020; Tomomi & Katsumi, 2020). This makes it more difficult for them to identify and reach the gate (Chang & Chen, 2012; Oostveen & Lehtonen, 2018)

Once they have reached the gate, based on the personal conditions, some of the passengers with special accessibility needs are accommodated in a reserved area or room. Passengers appreciate the opportunity to have a guaranteed seating. Nevertheless, some perceive this reserved waiting area as a space of social exclusion, leading to negative feelings of being isolated and separated from the others, as being quarantined as someone sick and contagious. Being restricted to the area often makes almost impossible for them to easily go to the toilet or make use of restaurants and shopping facilities (Oostveen & Lehtonen, 2018).
Waiting time at the gate also poses other challenges, such as being afraid of missing relevant information (e.g. delays, change of gate) due to noisy environment and inability to read or see the electronic signs. Blind passengers often feel insecure about hearing or understanding announcement messages due to the noise and unfamiliarity with the local language or accent (Chang & Chen, 2011; Poria et al., 2009).

4.5. In-flight experience

Boarding the aircraft

Boarding the aircraft is another crucial touchpoint along the passenger journey and it is considered to be an integral part of the overall flight experience (Poria et al., 2009). Difficulties might arise due to barriers in the physical environment (moving from the gate to the airplane) but also regarding challenges posed by the social environment, for instance the gaze from other passengers (Poria & Beal, 2016).

Many passengers with special accessibility needs have a preference for being boarded first, as this gives them some additional time to get seated comfortably without pressure of people queuing behind them and avoiding embarrassment and sense of humiliation in front of other passengers. This option is not always possible, for instance due to lack of ground staff, miscommunication, or poor organization/training. This can lead to physical and emotional distress, sense of humiliation, loss of self esteem and perceived lack of dignity by the passengers (Davies & Christie, 2017; Poria et al., 2009).
In general, as mentioned by Poria & Beal (2016), the interaction with the crew becomes crucial in this phase. Passengers with special accessibility needs actually reported pleasant experiences when they perceive the crew as well trained, professional, and able to discretely communicate and interact with them about their difficulties and challenges.

Seating and aircraft configuration

Aircraft seating procedures pose significant barriers and challenges for passengers with special accessibility needs, such as individuals with disabilities and morbidly obese passengers. Poria et al. (2009) reported difficulties in the seating processes for wheelchair users, as they often need to be transferred from their wheelchair to an aisle chair, which passengers report to be uncomfortable and cause pain. Passengers also reported a preference for window seats as they allow to minimize contact with other passengers and avoid inconvenience (Poria et al., 2009). Darcy (2007) emphasized the importance of flip-up arms in aircraft seats to ease the process of transferring passengers with disabilities to their seats, reducing the risk of injury for both passengers and assistants. Nevertheless, Davies and Christie (2017) mentioned how according to the experience of some passengers, on some aircraft armrests are fixed, adding another level of complication, sense of embarrassment and humiliation and risks of injuries.
Moreover, staff not always is familiar with the appropriate way to move passengers from the wheelchair to the aisle chair and vice versa, which can result in pain, discomfort, and injuries (Major & Hubbard, 2019; Poria et al., 2009).
This is the reason parents of children with disabilities often prefer to personally help and support their children during the seating process, as they often feel that airport staff lack experience in handling them (Davies & Christie, 2018).
Poria & Beal (2016) discussed the challenges faced by morbidly obese passengers, such as discomfort due to small seat sizes and embarrassment caused by physical contact with other passengers. Some passengers also reported issues with seat trays and safety belts not being long enough, requiring extensions that led to awkward situations.
According to Darcy (2007), allocating bulkhead seating with extra space to passengers with special accessibility needs could be a solution. However, not always this is possible, due to safety regulations.

Refreshment and meals

Passengers with special accessibility needs can experience discomfort during the on-board meal service, due to the reduced available space that poses additional challenges because of their specific physical condition (Davies & Christie, 2018; Poria et al., 2009; Poria & Beal, 2016) .

Moreover, Poria (2010) documented how the support of a travel companion or flight attendants able to approach them appropriately can really make the difference in how they experience the meal service and the overall flight experience.

IROP mitigation

IROPs (Irregular Operations) can also happen during the flight. For instance, turbulences have been identified as problematic because of balance issues on passengers that might already experience reduced mobility. Moreover, sudden movements can trigger muscle spasms causing involuntary awkward movements that are sometimes noticed causing embarrassment (Davies & Christie, 2017). Nevertheless, during turbulences usually the access to the toilets is forbidden, posing additional barriers to passengers, especially the ones using wheelchairs. In fact, long-haul flight for participants who use wheelchairs might require meticulous planning, including diet prior to the flight or pre-determined toilets break, that might be disrupted by turbulences (Poria et al., 2009).

Possible IROPs are also communicated during the flights via announcements by the captain or the crew. According to (Chang & Chen2012 and Davies & Christie (2017) certain passengers might experience these public announcements as challenging due to sense impairment and unfamiliarity with the spoken language or with certain accents.

Toilets

The challenge inherent in the accessibility and the use of the toilet has been described as traumatic by several authors (Chang & Chen, 2011; Darcy, 2007; Davies & Christie, 2017, 2018; Poria et al., 2009; Poria & Beal, 2016). In a study of Davies and Christie (2017), the majority of respondents described how they perceived going to the toilet as an impossible task, therefore they had never even tried.

Two elements make using toilets particularly challenging for people with special accessibility needs: the way from the passengers' seat to the toilet and the struggles with accessing the toilet itself (Poria et al., 2009). For passengers with reduced mobility, often a special aisle chair must be used by a flight attendant or by a flight companion, to bring the passenger to the toilet, leading to embarrassment and physical discomfort (Chang & Chen, 2012; Darcy, 2007). In terms of entering and actually using the toilet, issues are related to the tiny size of plane toilets which makes them unusable for passengers with special accessibility needs (Davies & Christie, 2018; Poria et al., 2009; Poria & Beal, 2016).

As mentioned by (Darcy, 2007), the impossibility to simply use the toilet can make the flight experience very unpleasant. For instance, to avoid the mentioned challenges and even prevent the need to use the toilet, passengers might rely on different strategies, such as fasting before the flight, not drinking and effectively dehydrating themselves during travel, incontinence pads, catheterisation, breaking the flight into two, to be able to use accessible toilets at the airport (Chang & Chen, 2011; Darcy, 2007; Davies & Christie, 2017, 2018; Poria et al., 2009). According to a study of Poria et al., (2009) in some cases passengers had to

urinate or defecate in a diaper, something that was described with a profound sense of humiliation and personal suffering also due to the consequent staring and judgment they perceived from other passengers. As the author suggests, when similar “accidents” occur, well trained staff must manage the situation as quietly and discreetly as possible, which does not always happen.

4.6: Arrival and On-trip

Many of the issues encountered by passengers with special accessibility needs during the boarding phase re-emerge while disembarking, meaning feelings of embarrassment and awkwardness due to the curiosity of other passengers staring at them to check about how they cope with the situation. When passengers are not able to disembark autonomously, they are sometimes asked to disembark after all the other passengers. As stated by Darcy (2007) this approach might partially protect them from experiencing the awkward situation of being put under scrutiny of everybody else and has the advantage of maintaining their dignity and privacy. On the other side, this means long waiting time before disembarking, which also causes negative feelings and risks of missing connections, for instance (Darcy, 2007, 2012; Poria & Beal, 2016). While focusing on the Australian context, Darcy (2007) also reports how the support to passengers with reduced mobility for the disembarking procedure is not always provided by staff with the necessary profile and with an adequate level of expertise and training. According to the author, key issues and unprofessional attitude may occur even after staff formally received disability awareness training. Delays in the disembarking procedure have also been reported as consequences of miscommunication about people being on the flight or unavailability of porters to disembark passengers.

A genuine issue reported by multiple authors concerns several types of damage to mobility aids such as wheelchairs, when they are returned to passengers after disembarking. This is a major problem, and it is particularly inconvenient for passengers as often they are completely reliant on these aids, not only for navigating the airport but also for their holiday and for ensuring a good health in their daily life (Davies & Christie, 2017, 2018). Nevertheless, repairing those damages might be difficult and, when possible, it can be costly and usually it takes time (Major & Hubbard, 2019), as they are often tailored to the requirements of individuals. Davies and Christie (2018) report how some passengers, to emphasise the importance of the mobility aid, they attach pictures and messages to it, trying to convey the message that to them it is much more than just a simple piece of equipment.
Sometimes frustration is also caused by the lack of communication whether the mobility aids will be returned to the passengers at the cabin door or to the baggage reclaim, which increases the uncertainty and therefore causes additional stress and anxiety (Davies & Christie, 2017). The authors also indicate how passengers sometimes complain as they would like to experience a greater level of understanding from the staff and a better communication with them through the process of air travel.

While leaving the terminal and on their way to their destination, passengers with special accessibility needs can experience similar challenges and barriers to the ones examined in phase 3 "to the airport” and determined, among others, by the absence of an effective multimodal mobility that would allow passengers to easily switch between different mode of

transports according to an “end-to-end” inclusive approach (Chang & Chen, 2012; Duca et al., 2022; Tomomi & Katsumi, 2020).

5 Summary of findings with Experts and Aviation Staff (travel industry)

5.1. Shop and Purchase/ Booking

The booking phase, while being just the first step of the passengers’ journey, it is filled with unique challenges that need to be addressed, in order to set the right tone for the entire travel experience. The insights gathered from industry experts underscore the pressing need for informed, empathetic, and systematic approaches to ensure smooth and effective booking processes for all passengers.

Communication, especially miscommunication or lack of communication, emerged from the interviews as a significant theme. What happens in this phase in terms of communication, will affect many elements of passenger experience. When PRMs book a flight, they ideally communicate their needs to the airline. The clearer passengers are about their needs and expectations, the more tailored the support they receive. Such pro-active communication can range from indicating the need for wheelchair transportation or other arrangements concerning visual or hearing impairments. Early and clear communication from both sides ensures that the necessary arrangements will effectively be in place. Nevertheless, interviews with industry experts revealed how communication shortfalls can happen from both sides, the airlines, and the passengers.

Shortfalls in the communication from Airlines to PRM: Website design stands out as a foundational concern. General websites may be challenging for some passengers, depending on their type of disability, and the booking process is not necessarily straightforward. A higher level of inclusivity of the booking interface is desirable, for example including specifically designed features. There is not a standardised set of information that is clearly provided by the airlines or asked from the customers. Each airline provides and collect diverse types of information from customers. This leaves PRM confused, leading to prolonged booking durations involving numerous calls and emails.

Shortfalls in the communication from PRMs to Airlines. Sometimes miscommunications can also come from the passengers’ side. They can be a consequence of communication shortfalls from the airlines, but they can also be determined by other factors. For instance, the booking process touches on the delicate balance between acquiring necessary details for appropriate arrangements and respecting a passenger's right to privacy. Some passengers might feel uncomfortable or reluctant to disclose their personal conditions, making it even more challenging to ensure their needs are met. Moreover, elderly passengers and PRM often rely on younger family members to book their tickets. These relatives, although tech-savvy, might not have a full understanding of the mobility restrictions their older family member faces. This can lead to challenges, especially in busy airports where long might be daunting for someone with limited mobility.

Few respondents mentioned the need of more extensive trainings for airline's staff, to ensure smoother and more inclusive travel experiences for all. These training show involve not just sales staff, but all the functions, including procurement (e.g. website design).

5.2 Preparations to Travel

Interviews with industry experts revealed a blurred distinction, from their side, between the "booking" and the "prepare to travel" phases. As mentioned before, shortfalls in the communication between airlines and PRM might lead to prolonged booking durations involving numerous calls and emails, which are also part of the activities carried out for preparing to travel.

From the perspective of industry experts, in this phase passengers just want to make sure that everything they might need is set and arranged for them. Nevertheless, respondents pointed out how unexperienced travellers might face additional challenges and uncertainties, as for them it might be even more difficult to voluntarily disclose information and advance specific requests, if not facilitated or directly asked by the airlines.

5.3 Mobility to airport

The challenges faced by passengers with specific accessibility requirements during their journey to airports are multifaced, as reported by aviation and travel industry experts. In countries like the Netherlands, the train systems, a critical component of public transportation, seem to lack inclusive design. Many times, the elevators at train stations are out of service, making it impossible for those with reduced mobility to access the platforms. Depending on the station, passengers might also be required to reserve a special assistance service both to get on and off the trains, although the service is not always provided. Moreover, the facilities inside the train, such as toilets, are inaccessible for them.

Ineffective inclusive public transport means PRM have to get to the airport by their own transportations means and this might bring forth additional monetary considerations. Some passengers might be able to drive and park independently, although they will still need assistance once they reach the airport. Other might need to be picked up from their residences, for example by taxis or other private transportation services. The underlying concern is the extra cost associated with these services as it does not seem fair that PRM would need to pay more than others to reach the airport?

The challenges persist even after reaching the airport premises. Notably, there are issues related to parking. Airports, in some instances, do not have parking spaces designed specifically for people with disabilities. Even if there are drop-off zones, the distance from these zones to the terminal can be long, requiring those with disabilities to seek assistance. An ideal solution, as hinted by one expert, would be to have dedicated parking spaces for people with disabilities closer to the terminal to promote independence.

Beyond the physical challenges, there are psychological pressures as well. The stress associated with catching flights is magnified for those with accessibility needs. Concerns about

being on time, given the extra time they might need for various processes, can be overwhelming, often necessitating them to arrive much earlier than other travellers.

5.4 Airport experience

The complexities of a timely assistance

A recurrent theme in the interviews was the challenge of providing timely assistance, especially during busy periods, due to the unpredictability associated with the number of passengers requiring assistance and their exact arrival times, which creates bottlenecks in the service provisions, due to a scarcity of personnel to assist passengers during peak hours. According to one of the interview's respondents, a sizeable portion of passengers, close to 50%, requests special assistance only upon arriving at the airport, which makes it more challenging for Airports to provide effective assistance. In this case, responsibilities lay also on some airlines, which are failing to emphasize the importance of pre-registering for assistance during the booking process, while others highlight it prominently.

Respondents also mention the unpredictability associated with the duration required to assist individual passengers. Some passengers may need just a few minutes, while others might require up to an hour. Some passengers show up at the assistance desks with excessive hand luggage, which is difficult to manage for assistance personnel and, for example, requiring additional equipment like another wheelchair just for the luggage, further complicating and extending the length of the process.. obviously, all these variables are difficult to forecast, putting additional pressure on the dispatchers managing the assistance operations.

Language barriers and communication challenges

The airport experience is characterized by encounters with staff and personnel who play a vital role in guiding, assisting, and providing information. A primary challenge identified by several industry experts is language barriers. As noted by an expert with experience in ground handling services, a lot of the information provided at airports is in the local language or English, potentially excluding those who do not understand these languages. Misunderstandings can lead to negative experiences, particularly if staff seem unresponsive or if passengers feel that their concerns are not being addressed adequately. This sentiment was reinforced by an aviation expert with cabin attendant experience, who recalled encountering lost and panicking passengers who cannot effectively communicate due to language challenges.

Identification Systems for passengers' special needs

The 'sunflower cord' and similar systems were mentioned as a method to visually identify passengers with specific requirements and make them visible to airlines and airports' staff. While one aviation industry believes this system helps employees by offering them a visual indicator signalling a passenger with specific needs, other experts express concerns about potentially increasing visibility of passengers' needs, which might be undesirable.

Calm Meeting Points

Airports, with their incessant bustle, can be overwhelming. A travel industry expert underscores the significance of calm, easily identifiable meeting points. For certain demographics, such as passengers with mental handicaps, ambient chaos, exacerbated by meeting points situated near high-traffic areas like restaurants or train stations, can be disorienting. The introduction of quiet rooms or dedicated gathering areas could be a meaningful change, offering passengers a safe environment in the airport's hustle.

Navigating the airport fragmentation of the assistance service

Navigating the airport involve multiple touchpoints, from check-in to boarding. At several stages, passengers might be handed over from one service provider to another, potentially leading to a fragmented experience. The handover process, as an expert explained, often necessitates the passenger to make repeated contact with various personnel, sometimes multiple times during a single process. This can be daunting and stressful, especially in case of language barriers and for certain type of disabilities. Security checks represent another pain point. The current system is not always designed with PRM in mind, often merging them with the rest of the passengers. This can be problematic as PRM usually require additional time and attention during these checks, and any rush can cause unnecessary stress and anxiety. Experts have underscored the need for a resolute and more calm process for PRM at security checks to ensure their comfort and ease. However, it is not all negative. Some experts have witnessed good experiences with special assistance at airports, including examples with designated paths through security checks.

Navigating facilities and amenities

The availability and accessibility of facilities within the airport also play a pivotal role in shaping the airport experience for PRM. While the assistance service at some airports appears more flexible when PRM are willing to pay a quick stop at food stores or purchase essentials, others are not. Furthermore, toilets are sometimes missing certain necessary facilities, such as spaces and equipment for changing adult diapers, as noted by a respondent.

Unpleasant experiences during embarking and seating procedures

The number of passengers who require assistance being lifted has seen a significant increase. The current handling methods of these situations, as noted by an expert with experience in ground handling services (WC), are both limited in options and time-consuming, also presenting a dilemma between ensuring optimal service for the passengers and maintaining efficient operations. Moreover, two travel industry experts reported unpleasant incidents where passengers with PRM were referred to in derogatory terms by the staff assisting them (e.g. bags of potatoes, dead pieces of meat). Such language, even if unintended, can create negative experiences for passengers. It is crucial for staff to use sensitive language, making passengers feel valued and respected, rather than being viewed as a burden. Another expert emphasized the necessity of not only hard skills but also soft skills like empathy and respectful communication.

Handling and separation from personal aids & equipment

The issue of personal aids, such as personalised wheelchairs, was highlighted repeatedly. These aids are not just tools. To their owners they are an extension of the person. Therefore, their handling demands utmost care and expertise. For instance, challenges arise when passengers have to part with their wheelchairs before boarding. Not only does this create mobility issues, but there is a fear they could be mishandled or damaged.

Ground Handling Staff Training

Ground handling staff training emerges as a pivotal component in ensuring a smooth airport experience for passengers with special needs. At certain airports, as reported by one of the respondents, a systematic training structure is in place that includes both basic and advanced modules. These initial stages of training are theoretical, extending for one to three days. This theoretical background knowledge is crucial to dive deep into regulations, which is essential for staff to comprehend the broader regulatory landscape. This theoretical foundation is paired with practical training, focusing on the unique procedures of the airport, diverse ways to interact with passengers based on their specific disabilities, and lifting techniques given that many passengers require physical assistance. Further emphasis is also placed on customer service and hospitality to ensure passengers not only receive the required assistance but are also treated with respect and kindness.

The human factor in the airport experience

While infrastructure and regulations play a key role, some respondents mentioned the human factors as an indispensable aspect of entire passengers' journey. For PRM, boarding is a significant challenge, often requiring personal assistance. The availability of trained and empathetic staff is crucial. However, there seems to be a concerning trend. Finding individuals genuinely dedicated to passenger care is becoming increasingly challenging.

Complaints of passengers being treated without respect and understanding underline the need for not just training but also cultivating a genuine sense of care and responsibility among the staff. Awareness among staff also surfaces as a crucial factor. Many do not realize the challenges faced by passengers with special needs simply because they have not been trained to see from their perspective. Fostering this awareness is crucial to providing more inclusive services.

A vision for a more inclusive airport experience

A recurring sentiment among industry experts is the need to make airports more accessible in the future. One of the primary ways to achieve this is to reduce obstacles and allow passengers, even those with specific requirements, to navigate the airport as independently as possible. Innovations are being evaluated, such as self-propelled wheelchairs, aiming to empower passengers and provide them with the autonomy they desire. Yet, this is only a fragment of the larger picture. The ultimate objective is to allow passengers to navigate the airport in the most comfortable and efficient manner. To ensure continuous improvement, some airports even conduct annual tours with specific groups to identify challenges and collect feedback. Regular meetings are held every quarter with these groups to discuss any issues and introduce new projects.

5.5. In flight experience

The 'in-flight' phase is another critical component of the passenger's journey for PRM. Insights gathered from industry experts highlight several areas of concern and potential improvement for enhancing inclusivity of the flying experience.

Cabin attendant training

A recurring theme across the interviews is the limited training cabin attendants receive concerning PRMs. The training primarily revolves around safety, which is evident from the practice of noting the location of blind passengers and ensuring that PRM are not seated near emergency exits. A profound understanding and awareness are vital not just for compliance but to genuinely serve passengers. For instance, while assisting blind passengers, attendants are trained to show Braille cards, explain safety measures, and periodically check on the passenger's needs. Anyway, such practices seem often driven more by safety regulations than genuine concern for passenger welfare.

Safety concerns and logistic aspects

Safety concerns are paramount, especially when there is a considerable number of PRM onboard, as the logistics of evacuating an aircraft filled with immobile passengers can be difficult. Adding to this complexity are issues like storing heavy luggage, as elderly passengers often travel with excessive hand luggage, expecting cabin attendants to place it overhead. This expectation has led to health concerns for the attendants, with many experiencing medical conditions due to frequently lifting heavy baggage. Moreover, the challenge of aiding passengers to access toilets is frequently reported. Expecting cabin attendants to physically assist, especially when passengers can be heavy, is unrealistic as they are not trained like medical personnel or caregivers, and they are not ready for that job.

Visual identification systems for passengers with special needs

A debated topic concerns the implementation of identification systems for passengers with special needs. Some methods, like the sunflower cord, have faced criticism due to potential misuse, leading to staff irritation and reduced effectiveness. Contrarily, others argue for more discreet systems, highlighting the dilemma of making special needs visible versus respecting passengers' privacy. The crux of the issue is the balance between the need for assistance, which may not be externally visible, and the sensitivity required in providing that assistance without being intrusive.

Positive In-Flight Experiences

Despite these challenges, respondents also report positive in-flight experiences. Certain airlines have proactively addressed PRM's needs, with cabin crew introducing themselves personally and ensuring that passengers feel acknowledged. These small gestures, like informing a passenger about available emergency equipment, can make a considerable difference.

5.6. Arrival and on-trip experience

Interviews with industry experts highlighted the existence of challenges for PRM also in the last phase of the passengers' journey. While there are systems in place to support passengers with specific accessibility requirements, there are still gaps that can lead to negative experiences. Effective communication between airlines and airports, timely provision of resources is crucial for ensuring a smooth journey for these passengers.

In the perspective of industry experts, the journey's departing and arriving phases mirror each other in terms of the problems faced. Nevertheless, for outgoing flights issues are easier to deal with at the airport of origin compared to the airport of destination, because their travellers are faced with an unfamiliar environment, potential language barriers, and the uncertainty of service reliability at their destination, depending on the airport. An aviation expert with experience as a cabin attendant, elaborated on specific needs. For instance, passengers sometimes continue highly personalized wheelchairs, which can get misplaced. The loss of such an essential item can be particularly distressing, as it cannot be easily replaced, due to the elevated level of personalisation. This can hinder the individual's entire trip. Additionally, there are concerns surrounding the handling of electric batteries in wheelchairs, leading to confusion about their placement during flights.

Disembarking presents its own set of challenges. In remote airports, where specialized equipment is not available, alternative solutions, like seeking assistance from the fire department, have been employed to help passengers disembark. Another expert drew attention to the fact that in peak seasons, there may not be sufficient staff to assist passengers with reduced mobility immediately upon landing, leading to long waiting times and feelings of neglect. Arrival assistance, according to an expert with ground handling experience, is usually based on information relayed from the departure airport. The number of assistants deployed is based on the number of passengers needing help. However, this does not always translate smoothly. Passengers may have to wait if there are not enough attendants. Such waiting periods, especially after already having been on a plane for hours, can be a source of stress and frustration for passengers. On the other side, rushing such passengers can lead to severe consequences, as in the case of a passenger who suffered an epileptic attack due to the stress and had to be hospitalized.

The responsibility of airlines in communicating the needs of passengers was emphasized. Airlines need to clearly address the requirements of passengers during the booking process (so… back to phase 1). Instances have been reported where passengers' needs were only communicated a few hours before arrival, which requires complex adjustments in the schedules of ground staff.

6. Summary of findings with Passengers with Reduced Mobility

6.1. Shop and purchase

Passengers with assistance dogs face challenges due to complex European laws and airline policies, namely the issue of vague European laws and discrepancies in airline practices. They mentioned difficulties when traveling abroad and the fact that assistance dogs are not explicitly mentioned in the regulations. Different airlines have varying procedures, and the passengers seek confirmation through email correspondence to present at the airport. One passenger recommended starting with an airline's website to find information about their service dog policies. They noted that some airlines have clear guidelines for certified service dogs from accredited schools, such as ADU and ADI. However, exceptions exist, particularly for psychiatric dogs and friend dogs for veterans, creating a need for a more straightforward and consistent policy. Code-sharing between airlines further complicates matters. They recounted subjective experiences of being removed from flights despite having all the necessary permissions to travel. While most airlines address these issues, long-distance travel can be more challenging, especially when there are multiple connecting flights. Medication restrictions also play a role in limiting air travel.

Disability-related information during the booking process

Participants believe that enhancing awareness of who will be onboard and allowing for better preparation benefits both passengers and airlines. They prefer this information to be part of the booking details. They stress the importance of indicating the type of disability during the booking process as it sets a clear path for airline services. The challenges exist regarding obtaining clear information from airlines, especially when sending emails. Sometimes, airlines provide vague responses or none at all, causing uncertainty. One passenger shares their practice of calling the airline even if the necessary information is available on the website. They prefer speaking directly to airline representatives to ensure their needs are understood and accommodated. They also mention the significance of getting written confirmation about wheelchair accommodation. This approach gives them peace of mind and certainty regarding their travel arrangements. While they request confirmation, the process can take time and be unclear.

Flying with service dogs

In the Netherlands, there's debate about the lack of specific national regulations for service dogs. However, there are EU rules governing the flying of service dogs. Some airlines, like KLM, have at times refused to allow guide dogs on board, citing the absence of Dutch regulations, even though EU rules should apply. This resulted in passengers having to book with other airlines. There also needs to be better clarity and consistent adherence to service dog regulations across airlines to ensure that those with legitimate service dogs are not denied their rights and to deter fraudulent activity. Passengers encounter absurd questions, such as whether their service dog can refrain from urinating during the flight. This leads to frustration and inconvenience for passengers with officially registered service dogs.

Passengers note that there has been legislation established for service dogs, but it has also unintentionally made it easier for fraudulent cases. Some individuals have attempted to pass their regular pet dogs as service dogs by using vests and filling out forms. This fraudulent activity led to airlines adopting stricter policies regarding service dog travel. Now, only individuals with a genuine service or assistance dog accredited by ADU and ADI are allowed to bring their dogs on board.

Alignment and transparency of information

More standardized regulations and transparent communication among airlines are needed to ensure a smoother and less frustrating travel experience for passengers with reduced mobility. Airlines operating codeshare flights also present challenges, where passengers book with one airline, but the actual flight is operated by another. This leads to uncertainty about which regulations and accommodations apply to the journey. Airlines may occasionally deny boarding, even with proper approvals, leading to the passenger's frustration and inconvenience. The lack of clear and consistent regulations across airlines contributes to this issue. Furthermore, while communication with the airline is facilitated online, it is essential for passengers to double-check information and ensure alignment between outbound, connecting and return flights. Inconsistent information about wheelchair policies, seat reservations, and other details across airlines is a common concern for passengers. They encounter challenges with varying regulations across different airlines and sometimes receive different information from airline employees. The transparency of information about the fate of wheelchairs and the logistics of deplaning is seen as crucial, especially at airports without tunnels, where separate vehicles may be required to transport passengers with reduced mobility.

In some cases, passengers have faced difficulties even after reaching the top of the stairs to board the aircraft, with airline staff (pilots in particular) stating that their approvals were not in the system and need to disembark. Passengers have therefore developed strategies to address these challenges, such as requesting a print copy of the booking information that clearly indicates their accommodations and approvals. This serves as a means of evidence in case disputes arise during the boarding process.

6.2. Preparing to Travel

Passengers with service dogs ensure their dogs are freshly groomed before traveling to maintain their cleanliness and ensure they do not cause any discomfort to others during the flight. Travelers with allergies or specific dietary requirements face challenges when planning trips to countries with cuisines that may contain allergens to which they are sensitive. This becomes especially complex when there is a language barrier, making it difficult to communicate dietary restrictions. Passengers with allergies or medical conditions must carefully plan their medication (and distribute them according to the regulations across the luggage items) and food supply for the trip. This may include carrying essentials like EpiPens and antihistamine pills to manage allergies or reactions while away from home. Passengers who use wheelchairs must take precautions to minimize the risk of damage during the flight.

This includes securing wheelchair controls and folding footrests to prevent damage in the cargo hold, a process that often needs to be completed at the airport, making it a last-minute stressor.

6.3. Mobility to airport

PRMs experience various logistical, sensory, and accessibility issues when attempting to reach the airport. Some passengers, like those with schizoaffective disorder or autism, find it challenging to travel on public transport due to overwhelming sensory experiences, such as loud and multiple voices. They often seek quiet or silent areas within the train and carry headphones as a coping mechanism. Traveling with a wheelchair and a service dog, especially when carrying luggage, can be cumbersome. Finding accessible transport, heavy bags, controlling the dog, and navigating the airport parking can pose logistical challenges. Passengers with muscle diseases often experience difficulties combining flight schedules with wheelchair taxi availability. This poses concerns about reaching the airport and the amount of baggage that can be accommodated in the wheelchair taxi. When encountering flight delays, PRMs may face difficulties in arranging transportation to hotels and back to the airport. Ensuring the safe transportation of their wheelchairs during bus rides can be a concern. In some regions, like the Netherlands, using a wheelchair on public trains can be impossible, making alternative transportation arrangements, such as private vehicles or taxis, the only viable option.

6.4. Airport experience

Not all passengers with reduced mobility or specific access requirements proactively inform airlines or airports about their conditions, which can sometimes lead to challenges in receiving the necessary assistance or accommodations. Some passengers, particularly those with mobility impairments, have had positive experiences with airport assistance services. These passengers appreciate the priority treatment, assistance with check-in, and understanding from airport staff. However, there are negative experiences including poor treatment by airlines, especially those failing to provide appropriate assistance. These experiences result in difficulties during layovers, miscommunication, long wait times, or even accusations related to opioid medication. Passengers often have to be flexible and patient when dealing with those challenges. They emphasize the need for respectful treatment, safety assurance, and clear expectations, especially during transfers and layovers. Passengers have expressed stress related to waiting for assistance, especially when it does not arrive on time, which can lead to anxiety about potentially missing flights. Some passengers face regulatory challenges related to carrying necessary medications, especially opiates. Strict security checks and concerns about opioid medications can lead to additional stress and time-consuming procedures. Some passengers with mental health conditions, such as schizoaffective disorder, can be deeply affected by previous negative experiences at the airport, which may increase their anxiety and discomfort during travel.

Sensitive information and confidentiality

PRMs have expressed concerns related to privacy and confidentiality at airports, specifically related to their medical conditions and service dogs. A participant with autism highlighted the issue of privacy when going through the security check. In this case, the passenger had a support stuffed animal in their suitcase, which customs officials opened for inspection. This process made the passenger feel exposed, and they were concerned about others seeing the contents of their luggage. The lack of privacy in such situations can be uncomfortable for passengers. Several PRMs shared concerns about the appropriateness of airlines or airport personnel asking for specific medical information, such as doctor's letters or details about their medical conditions. They emphasized that it might not be comfortable or appropriate to share such sensitive information in public. Some PRMs suggested that individuals with certain conditions, such as PTSD or epilepsy, may not wish to share their stories or personal information. They also stressed the importance of discretion in interactions with airline personnel. They suggested that flight attendants or service staff should be considerate in their approach. Instead of directly asking passengers about their medical conditions or service dogs, they could offer discreet assistance or ask if there is anything specific they can do to help. Some participants noted that they often share their information voluntarily as advocates for those who may not feel comfortable doing so, but they stressed the importance of respectful and discreet interactions.

Alignment and availability of information

PRMs often encounter issues where the information provided to the airline may not be effectively communicated to the airport staff. They expect that when they request assistance from the airline, the entire process should be seamlessly coordinated, including airport services. However, there is a disconnect in the communication between the airline and the airport. As a result, PRMs sometimes have to spend hours arranging assistance at the airport, even after they believe it has been pre-arranged. This lack of alignment between airport and airline services causes confusion and frustration. Participants reported instances where their requests for assistance, which should be indicated on their tickets or in the airline's system, do not seem to be available or acknowledged at the check-in counter. It also raises concerns about the effectiveness of the communication and information-sharing process between airlines and airports. In some cases, PRMs have faced the extreme inconvenience of being denied boarding despite having already checked in their luggage. This denial often occurs when the requested assistance for passengers with reduced mobility is not properly registered or acknowledged in the system. Such an experience can be not only unpleasant but also highly disruptive to travel plans.

6.5. In-flight experience

Some PRMs, like those with schizoaffective disorder, experience psychological distress during flights. This distress can lead to emotional breakdowns, crying, and a strong desire to disembark. These situations can be challenging to manage while on board. Negative experiences often stem from a lack of compassion and understanding from fellow passengers.

PRMs may encounter individuals who prioritize their own desires and comfort over accommodating those with special needs, leading to uncomfortable and even hostile interactions. Furthermore, passengers with food allergies may face difficulties when the cabin crew cannot provide clear information about the ingredients in the in-flight meals. This can lead to situations where passengers are unable to eat, while others around them enjoy their meals.

Boarding preferences

PRMs have a range of preferences based on their specific mobility needs, comfort, and personal considerations during the boarding process. Airlines and airports should aim to accommodate these preferences to enhance the travel experience for these passengers. For example, wheelchair users prefer to board the plane early. This allows them to avoid being exposed and manoeuvring through crowded cabins. Many airlines make announcements at the gate for passengers with reduced mobility, allowing them to board first. However, there are instances where these passengers may be asked to board the plane last, which is less desirable. Some passengers, including those with schizoaffective disorder, have seating preferences. Sitting by the window is preferred as it provides a calming view for them, while in other cases, the possibility of booking front seats or seats with extra legroom would be welcome, especially for individuals with mobility disabilities or those accompanied by service dogs.

Transparency of information and discretion

Participants shared various insights and concerns related to the transparency of information and discretion while traveling, particularly regarding their conditions and dietary needs. PRMs emphasized that airline staff should exercise discretion and show a better understanding of conditions that are not visible. They sometimes feel that their concerns are dismissed or misunderstood, and more awareness and knowledge among staff could lead to improved service. Some participants mentioned that while some airlines provide allergen information, it is not always readily available. Participants highlighted the importance of clear communication with cabin crew regarding their dietary restrictions and allergies. They often inform the crew about their allergies or specific requirements before being served food, ensuring that their needs are addressed. Those with severe allergies suggested that airlines should communicate allergen information to other passengers. This way, fellow travellers can avoid consuming foods that contain allergens that are airborne and may trigger allergies or pose risks to sensitive individuals.

Navigating through the aircraft

Participants expressed challenges related to navigating through aircraft, particularly when using the lavatory during flights. They noted that using lavatories can be extremely challenging due to the confined spaces, making access difficult for many passengers, especially for those with mobility issues. Some individuals had to resort to wearing diapers and refraining from drinking liquids to avoid lavatory visits.

Many PRMs mentioned that most aircrafts do not have the necessary equipment, such as transfer chairs or narrow seats used to transport passengers from their seats to the lavatory. The absence of these aids can make lavatory trips even more challenging. Some passengers choose their seats strategically, such as those closer to the lavatory or near emergency exits, to gain better control over access. Aisle seats are often preferred for easier navigation. However, finding and accessing the lavatory doors during night flights or when lights are off can still be problematic, especially for visually impaired passengers. The availability of special seats that can be placed next to the passenger's seat for transportation to the lavatory varies from plane to plane. This inconsistency leads to uncertainty about the accessibility of facilities on different aircrafts.

6.6. Arrival and on-trip experience

Disembarking

Air passengers with mobility disabilities and medical conditions face challenges during disembarking, including safety concerns and the need for clear communication and procedures to ensure a smooth transition from the aircraft, particularly for wheelchair users. Slippery stairs and challenging conditions, such as rain, can make the process feel unsafe. Passengers often have to trust the airline and airport staff to ensure their safety during this process, particularly in adverse conditions. Communication during disembarking could be improved, especially when passengers are waiting for their own wheelchairs to arrive. The process of waiting for a wheelchair can sometimes be extremely long and unclear, and passengers may have to wait until the entire plane is empty in order to be serviced and escorted to the airport building.

Navigation through airports

Upon arrival, navigation can be a complex process for passengers with mobility disabilities and certain medical conditions. Assistance services at the airport are often helpful, guiding passengers from the aircraft to various airport facilities, including customs and baggage claim areas. However, waiting times for assistance can be a concern. The experience of navigating through the airport can vary depending on the airport itself. Some airports have specific facilities and procedures for passengers with disabilities, while others may not. Timely information regarding the location of services like pet relief areas is crucial for passengers with service dogs. Identifying and retrieving luggage from the baggage belt can also be a challenge, particularly for passengers with visual impairments or wheelchair users who travel alone. Assistance and clear communication are essential during this phase. Furthermore, arranging local transportation upon arrival can also be challenging and expensive, especially when special services such as wheelchair-accessible taxis are required. Public transportation options vary from city to city. Some passengers report positive experiences at specific airports where procedures are well-organized, and passengers are treated with respect and dignity.

7 Conclusions and recommendations

7.1. Conclusions

While environmental sustainability is a key challenge for the future of the aviation industry, social sustainability is equally important and deserve attentive considerations. Social sustainability in aviation involves ensuring that the benefits of air travel are accessible and equitable to all members of society, regardless of their socio-economic background or physical ability. This is important because travelling can broaden people's mind by exposing travellers to places, people and perspectives that would not be encountered without travelling (Scheyvens & Biddulph, 2017) and tourism has the potential to enhance people's quality of life and life satisfaction (Gillovic & Mcintosh, 2020). In a globalised world, air travel is necessary not only for leisure or business purposes, but often also to keep and strengthen family ties, visiting relatives (and friends) living far away. Nonetheless, the travel industry has often been positioned by scholars as exclusionary towards individuals and groups at the margins of society, highlighting the need to address the industry's lack of accessibility, which is contributing to social inequality (Gillovic & Mcintosh, 2020).

Ensuring accessibility is as a necessary step for an inclusive society. By focusing on social sustainability, the aviation industry strives to contribute to a more equitable and inclusive society, addressing important social issues such as inclusivity and accessibility. It does so in multiple ways. For example, airlines and airports already made significant improvements to ensure that passengers with disabilities have access to the same level of service as other passengers. This is also achieved by training their employees to help them better understand the needs of passengers with disabilities and understand how to provide the best possible service to all types of passenger. This includes training on how to assist passengers with mobility issues, visual and hearing impairments, and other disabilities.

While INCLAVI milestone 9 (M9) reports on the current state of affairs in the training and education of aviation professionals, this document (M10) provided in-depth stakeholders and users' insights, focusing on the passenger journey and the challenges faced by PRM. By matching the perspective of the two milestones, INCLAVI deliverable D2.1 (WP2 Summary) will identify gaps and opportunity on how to further strengthen the capacity of airports' and airlines' employees to provide adequate services and assistance to all types of passengers, including PRM.

Despite the great efforts made so far by airlines and airports, this report already shed lights on potential opportunities, as insights from existing literature, experts and PRMs reveal how the existing training (mapped in M9) are not always effective, leaving PRM with unsatisfactory levels of services. Sometimes this is caused by infrastructural limitations or other forms of barrier that cannot be addressed just by improving staff training. In other cases more effective training processes could make a difference.

Challenges can be faced by PRM already during the booking phase, when accessing the right information (online or via phone) is not always easy, due to website accessibility issues, lack of standard procedures, miscommunications, lack of knowledge by assisting staff and other

communication, awareness or knowledge barriers. This sometimes lead to stress, anxiety and fear of the unknown in the preparation of the travel. The challenges in the 'mobility to the airport' phase are often infrastructural and they stress the need for an effective integration of the air travel into an overall "multimodal mobility chain", to provide an efficient, accessible, and sustainable transport service for everybody. Nevertheless, knowledge, awareness and communication skills can play a role in easing the challenges experienced in this phase. Navigating a complex infrastructure such as an airport is also particularly difficult for PRM. Language barriers, untimely assistance, fragmentation of the assistance service and lack of compassion are frequently pointed out as causes of poor experiences. Miscommunications between airports, airlines and passengers can worsen the situation. Unclear signage, a noisy and bustling environment and concerns about privacy and confidentiality can be particularly challenging elements for passengers with certain conditions. Boarding and seating (nesting) pose significant challenges to PRM especially concerning passengers with a wheelchair, who need to undergo unpleasant transfer procedures from the wheelchair to the seat, sometimes causing physical discomfort, injuries and perceived lack of compassion from staff and other passengers. The in-flight experience can be uncomfortable due to structural limitations of the airplane in relation to personal conditions (e.g. access to toilets). Cabin crew job description is particularly centred on safety and their training is normally focused on those aspects, while there might be opportunities in terms of strengthen awareness, communication and other soft skills. Challenges persist in the last phase of the passengers journey, especially when the destination airport presents an unfamiliar environment and potential additional language barriers.

Concluding, the collected insights show potential and interesting opportunities for strengthening airports and airlines' staff training. More in general, if we look at the collected insights from the perspective of service design, we can understand the importance of embracing concepts such as inclusive service design and universal design, which would allow to design a service that will then be accessible by as many users as reasonably possible without necessarily requiring specific further adaptations for specific users. An effective implementation of this service philosophy would require staff training being an integral part of a universal design approach.

7.2. Recommendations

Based on these conclusions, there are three sets of recommendations that can be formulated: for **PRM policy development,** for **domains of the INCLAVI curriculum design,** and **other recommendations**

A. Recommendations for policy development of PRMS

- *On-time services:* Airlines should strive for on-time performance to minimize disruptions and ensure that passengers with reduced mobility can plan their travel more effectively, especially when relying on wheelchair taxis and other accessible transport options.
- *Wheelchair availability:* Airlines should collaborate with airports to ensure a prompt arrival of passengers' wheelchairs or mobility devices.
- *Wheelchair handling:* Airlines and airport staff should be trained in handling wheelchairs and assistive devices with care to prevent damage during transportation. This includes ensuring that wheelchairs are properly secured during bus rides and that passengers can have their wheelchairs back in working condition after the flight.
- *Awareness and sensitivity:* Airlines, airports, and public transport personnel should be educated and trained in how to interact with passengers who have sensory disorders, mobility impairments, or other specific needs. This training should focus on understanding, patience, and clear communication.
- *Identification badges or passes:* Implement identification badges or passes (e.g., an "autipas" for autism) that passengers can display briefly to inform airport staff of their unique needs. This can help reduce the need for personal explanations and maintain privacy.
- *Universal assistance forms:* Create a universal assistance form provided by the organization where passengers' service dogs are trained. The form should be available in multiple languages and outline that the traveler is accompanied by a service dog. This form can make it easier for passengers who may not speak the local language to communicate their needs.
- *Allow time for personal needs:* Train assistance staff to be more attentive to passengers' personal needs, such as restroom breaks and opportunities to eat or drink, without requiring the passengers to prompt them before boarding.
- Airport staff, including flight attendants, should receive training on **recognizing and responding to medical emergencies,** including severe allergic reactions (anaphylaxis). Having staff who are knowledgeable and prepared to respond calmly can greatly contribute to the safety and well-being of passengers with medical conditions.
- *Clear communication:* Providing clear and timely information to PRMs about airport procedures, gate changes, and connecting flights can help reduce stress and confusion. Enhance communication with passengers during embarking/disembarking. Flight attendants can update passengers on weather conditions and any potential delays in obtaining wheelchairs.
- *Respect and dignity:* Train customer facing staff in this to ensure that all passengers, regardless of their abilities, are treated with respect and dignity at airports. Make efforts to minimize any inconveniences and challenges they may face during flights and airport navigation.

- *Communication training:* Train airport and airline staff in empathetic and effective communication. This will instil confidence in PRM passengers and make them feel understood and catered to

Training on accessibility needs to airline and airport staff that is not in front-office positions or do not have direct contact with customers. This should be for example **procurement staff**, (regarding, for example website design or elements of the physical airports' infrastructures and facilities)

B. Recommendations for domains of INCLAVI curriculum

Domain 1: Skills development

- Legal and Ethical Considerations: Familiarizing with international and local regulations, as well as ethical practices in serving PRMs.
- Sensitivity Training: Developing empathy and understanding for passengers with diverse needs.
- Communication Strategies: Tailoring communication for different disability types.
- Communication Skills: Enhancing verbal and non-verbal communication for effective interaction.
- Emergency Response: Training for emergency situations involving passengers with reduced mobility.

Domain 2: Disability Awareness and Types of Reduced Mobility

- Understanding Various Disabilities: Common disabilities affecting mobility (e.g., mobility impairments, visual and hearing impairments).
- Passenger Profiles: Creating awareness of different passenger profiles and their specific requirements (temporary disabilities, permanent disabilities, hidden disabilities, with service dogs etc)
- Assisting Techniques: Assisting passengers with various mobility aids and devices.

Domain 3: Airport Navigation and Assistance

- Airport Layout and Facilities: Understanding the layout of airports and accessibility features.
- Arrival and Departure Procedures: Assisting passengers through check-in, security, and boarding processes.
- Passenger Escort Techniques: Safely guiding passengers through the airport, including embarking and disembarking the aircraft.

Domain 4: In-Flight Service and Comfort

- Aircraft Accessibility: Understanding the design and features of accessible aircraft.
- Seating Arrangements: Allocating suitable seats and ensuring comfort for passengers with reduced mobility.
- Onboard Assistance: Providing support during boarding, in-flight, and disembarking.
- Emergency Procedures: Addressing emergency situations and evacuation for passengers with reduced mobility.

Domain 5: Customer Service Excellence and Continuous Improvement

- Quality Customer Service: Focusing on exceeding customer expectations and ensuring a positive experience.

- Feedback and Conflict Resolution: Developing skills to handle feedback and resolve conflicts with passengers.
- Continuous Training and Development: Emphasizing the importance of ongoing learning and improvement.
- Case Studies and Best Practices: Analyzing real-life scenarios and industry best practices on PRM assistance.

C. Other recommendations

- *Clear indication of the condition:* To simplify the booking process, passengers recommend the option to indicate their conditions, such as visual impairment, autism, or mobility disabilities, at the beginning of the booking process. This would eliminate the need to navigate through multiple pages and extra sections to request assistance.
- *Streamline the assistance request:* When booking a flight, there should be a simple and clear option to request assistance. This process should be integrated into the online booking system, allowing passengers to check a box or provide information about their specific access requirements during the initial booking phase.
- *Immediate confirmation for wheelchair assistance:* Passengers recommend receiving immediate confirmation that their wheelchair will be taken along and not having to request it separately. Additionally, there should be a clear and timely response, ideally within less than 24 hours, to confirm that the requested assistance has been arranged.
- *Online submission of assistance requests:* To make the process more convenient, passengers suggest that all assistance requests, including wheelchair transport and seating preferences, should be submitted online. This would streamline the process and ensure that travelers receive written confirmation of their requests.
- *Early seat selection/allocation:* Passengers with reduced mobility or with service dogs often have specific seating preferences to accommodate their needs. Providing the option and giving the priority to choose seats at the front of the plane, closer to restrooms or with more space, would be beneficial. However, it's important that this process is made more accessible and less costly.
- *Accessibility information:* Airlines and airports should provide clear and accessible information about the availability of disability-friendly transportation options, such as wheelchair-accessible taxis, and how passengers can access these services.
- *Quiet spaces:* Airports can create quiet or silent areas within public transportation systems to accommodate passengers who may have sensory sensitivities or disorders, making the journey to the airport less stressful for them.
- *Incorporate sensory-avoiding paths at airports:* These paths should be designed to minimize exposure to overwhelming stimuli for individuals with conditions like autism, ensuring a calmer and more comfortable journey.
- *Accessible assistance desks:* Make assistance desks readily available and visible at the airport entrance. Passengers should have the option to check in and receive assistance right away, streamlining the process for those who may struggle with orientation.

- *Improved communication tools:* Develop mobile apps for airports with voice navigation features and airport layouts, providing step-by-step directions to gates and facilities. These apps should be compatible with screen readers and have accessibility features for individuals with visual impairments.
- *Allergen-free food options:* Create designated sections or stands at the airport offering allergen-free food for passengers with allergies. This would provide peace of mind and safer eating options for these passengers.
- *Rest areas or spaces to lie down:* Airlines could consider designating specific areas on the plane where passengers with medical conditions, like anaphylaxis, can lie down if needed. This would ensure the safety and comfort of these passengers during emergencies.
- *Ingredient information:* Airlines should make ingredient information for in-flight meals available. This information can be posted on the airline's website or included on in-flight menus.
- *Drugs availability such as Epinephrine (EpiPen):* Airlines should consider carrying EpiPens on board for both children and adults in case of severe allergic reactions. These can be life-saving devices and can be administered while waiting for further medical assistance.
- *Detailed food containers:* Provide in-flight meals in containers that include detailed ingredient information and allergen declarations. This will allow passengers with food allergies to identify safe meal options.
- *Timely information:* Provide passengers with timely information about the availability and location of essential services, such as pet relief areas. This information can be communicated by flight attendants upon landing or included in pre-flight materials.
- *Enhanced Website Design:* Make airline websites more accessible by adhering to web accessibility guidelines, such as WCAG (Web Content Accessibility Guidelines).

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Annex 1 Interview guide expert interviews

Interview guide

Introduction to the Interview guide.

In the first stage of expert interviews, 20-25 people of two groups will be interviewed. There are two questionnaires for the following target groups:

A. IP = Industry partners. Aviation industry stakeholders such as airports, airlines, and other aviation customer service providers with legislative obligations to provide inclusive services.
B. Passengers with disabilities or those who have specific access requirements () (PRMs) who can elaborate on their own experience, and those of others, being for example representative of an advocacy group.

Please find below the Introduction text for the interview and the two interview guides:

Introduction text for interviewer:

Great that you are willing to answer questions, and thanks for your cooperation.

We are conducting this interview for an EU funded project, INCLAVI, Inclusive Aviation.
The aim of this project is to improve the training and therefore the skills of trainers and personnel who are dealing with air Passengers with Reduced Mobility (PRMs) who may have a disability or other specific access requirements.
Also, INCLAVI aims to improve accessibility of PRM services contributing to inclusion and equal treatment of all passengers, especially by introducing missing skills and knowledge in the training of personnel working in airports and for airlines. In the end, the results of these interviews will lead to a new, innovative training in the field of air travel to improve the passenger journey for people with disabilities and/or other specific access requirements. Eventually, this will lead to more inclusive air travel in Europe.

This interview guideline has received the approval on Scientific Integrity by the Ethics Committee of the INCLAVI project. Research data are safely stored at a secure drive at Haaga Helia University in Finland. All interviewees will be anonymised, and no real name or surname will appear in any of our reports.

Would you give us permission to record the interview?

The interview will take 45-60 minutes. Do you have any questions?

[Start recording the interview]

Questionnaire for the Industry partner

A. General questions

1. We would like to hear about your experience in dealing with passengers with specific access requirements (PRMs).
Could you talk more about your company and the situations in which you provide your services (also) to passengers with specific access requirements?

(Note: It is important that the respondents say clearly:
- Do they work for airlines, airports, or other service aviation providers,
- Their staff category,

- If they have one, what is their qualification, and
- If they work airside or landside.)

2. How do you deal with inclusion at your company/organisation? What does it mean for you, and your business, to be inclusive?

- Would you define your business as inclusive? Why?
- If I say, "Persons serving passengers with disabilities and /or other specific access requirements-(PRMs)," which professional roles would you consider belong to this category?

An important conclusion from our own literature research is that sometimes the needs of the PRMs are not entirely known to the personnel which results in them not being appropriately treated.

3. What do you think needs to be done to provide a better/seamless service for PRMs?

4. How can we develop skills and knowledge to address this?

B. I would like to ask you several questions about the "passenger journey" of persons with disabilities or other specific access requirements (PRMs), from the moment of booking until arrival at the airport.

Phase 1. Shop and purchase (enquiring and booking)

1. Based on your knowledge, what are the barriers and challenges PRMs face when trying to book and purchase a flight?
2. Do you have any training on dealing with PRMs?
3. If so, could you please reflect on the effectiveness of the training when it comes to the booking and purchasing of PRMs?
4. Did the training cover all types of passengers with disabilities and other access requirements equally or did it focus on certain types or passengers with disabilities (- which ones)?

Which skills and knowledge about delivering services to PRMs do you still need to develop?

5. What kind of support do you require to close the gap between the current skills and knowledge and those desired? How would you like these to be delivered to you?
6. Do you have any suggestions for improvements in the way bookings are made for PRMs?

Phase 2 Preparing to travel.

1. Based on your knowledge, what are the barriers and challenge PRMs face when trying to prepare to travel?
2. Do you have any training on dealing with PRMs? Could you please reflect on the effectiveness of the training when it comes to PRMs travelling to the airport.

Which skills and knowledge about delivering services to PRMs do you still need to develop?

3. What kind of support do you require to close the gap between the current skills and knowledge you have and those that are desirable?

How would you like these to be delivered to you?

4. Do you have any suggestions for improvements in the way PRMs can prepare for travelling?

Phase 3 Going to the Airport

1. Based on your knowledge, what are the barriers and challenge PRMs face when going to the airport? (Interviewer:
2. Do you have any training on dealing with PPMs? Could you please reflect on the effectiveness of the training when it comes to the PRM's journey and arrival at the airport? Which skills and knowledge about delivering services to PSAR do you still need to develop?
3. What kind of support do you require to close the gap between the current skills and knowledge and those desired? How would you like these to be delivered to you?
4. Do you have any suggestions for improvements in the way PRMs travel to and are met at the airport?

Phase 4 Airport Experience

1. Based on your knowledge, what are the barriers and challenge PRMs face when they are at the airport?

Consider:

a. Car park: entrance, ticketing, route to departures
b. Arrival at PRM meeting point
c. Check-in – boarding pass, luggage, mobility equipment
d. Security check
e. Passport check
f. At boarding gate, hand luggage, mobility equipment,
g. boarding the plane, seating

2. Could you please tell us more about these challenges?
3. Do you have any training on dealing with PRMs? Could you please reflect on the effectiveness of the training when it comes to assisting PRMs in the airport?

Which skills and knowledge about delivering services to PRMs do you still need to develop?

4. What kind of support do you require to close the gap between the current skills and knowledge and those desired? How would you like these to be delivered to you?
5. Do you have any suggestions for improvements in the PRM's experience during their time in the airport?

Phase 5 In-flight

1. Based on your knowledge, what are the barriers and challenge PRMs face when they are on the flight?
2. Do you have any training on dealing with PRMs? Could you please reflect on the effectiveness of the training when it comes to in-flight experience of PRMs? Which skills and knowledge about delivering services to PRMs do you still need to develop?
3. What kind of support do you require to close the gap between the current skills and knowledge and those desired? How would you like these to be delivered to you?
4. Do you have any suggestions for improvements in the PRM's experience during their time on the plane?

Phase 6 Arrival and Onward Trip

1. Based on your knowledge, what are the barriers and challenge PRMs face when arriving and travel onwards?
2. Do you have any training on dealing with PRMs? Could you please reflect on the effectiveness of the training when it comes to the arrival of PRMs and their onward trip.
3. Which skills and knowledge about delivering services to PRMs do you still need to develop?
4. What kind of support do you require to close the gap between the current skills and knowledge and those desired? How would you like these to be delivered to you?
5. Do you have any suggestions for improvements in the PRM's experience on arrival time on the plane?

Thank you for your answers. It is a great input for improving the skills of people dealing with air passengers with disabilities and/or other specific access requirements (PRMs).

Questionnaire Passengers with disabilities and/or other specific access requirements

A. General questions

1. Your own experience is especially important to us. Could you talk about your disability or other specific access requirements and how this affects your travels?
2. Are you aware of the rights and legal regulations for passengers with reduced mobility (PRMs) ?

B. I would like to ask you several questions about traveling by air

Phase 1. Searching, enquiring, and booking the flight

1. Could you reflect on the type of challenges you experience while searching and booking your flight? For example, having difficulties finding the right information?

2. What are your needs and wishes in this stage of the journey? Could you talk more about how supported you feel by airlines?
3. Could you please reflect on the services and support you found useful during this stage? How can any support be improved?
4. What kind of support would you still require and like to receive which you have not received so far?

Phase 2. When you prepare to travel

1. What challenges do you face when you prepare to travel, for example when you are looking for information on the internet? How is your experience of being dealt with as a person during this stage of your journey?
2. What are your needs and wishes in this stage of the journey? Do you feel supported by airlines at this stage?
3. Which services and support you found useful during this stage and why? How can any service and support be improved?
4. What kind of service or support would you still require and like to receive which you have not received so far?

Phase 3 Going to the Airport

1. What challenges do you face when you are going to the airport, for example when it comes to transport? How is your experience of being served by personnel during this stage of your journey?
2. What are your needs and wishes when you are going to the airport? Did you feel supported by the airline?
3. What services and support you found useful during this stage? Why? How can any service or support be improved?
4. What kind of service or support would you still require and like to receive when you are going to the airport which you have not received so far?

Phase 4 You experience at the airport

1. When you arrive at the airport, what challenges do you face at the airport? How is your experience of being served as a person when you are arriving at the airport, moving around, and checking in?
2. Can you reflect on a time you felt you were not treated adequately, or had difficulties navigating the airport?
3. What are your needs and wishes when you are at the airport? Do you feel supported by airlines?
4. Could you please reflect on the services and support you found useful during this stage? For example, do you get any support and by which service? How can any support be improved?
5. What kind of service or support would you still require and like to receive which you have not received so far?

Phase 5 On the flight

1. What challenges do you face when you are on the flight? How is your experience of being served by personnel as a person on the flight? Can you reflect on a certain time you were not treated adequately in board, or faced other difficulties, for example moving around?
2. What are your needs and wishes in the flight?
3. Did you have access to all information for passengers and to the devices available for passengers at their seat
4. Do you feel supported by airlines, ground handling organisations etc.?
5. Could you please reflect on the services and support you found useful during this stage? How can any service be improved?
6. What kind of service and support would you still require and like to receive which you have not received so far?

Phase 6 Arrival and Onward Trip

1. What challenges do you face during this phase? How is your experience of being served as a person when arriving or leaving the airport? Do you recall a moment when your arrival at the airport was not so good?

2. What are your needs and wishes in this stage of the journey? Do you in general feel supported by airlines?
3. Could you please reflect on the services and support you found useful during this stage? How can any service or support be improved?
4. What kind of service or support would you require and like to receive which you have not received?

C. Final Questions
1. What is your best experience at an airport and why?
2. What is your worst experience at an airport and why? What could have been better?

Thank you for your answers. It is a great input for improving the skills of people dealing with air passengers with disabilities and/or other specific access requirements.
Would you like to stay updated on the INCLAVI project?
O yes
O no

Annex 2 PowerPoint presentation (Nov. 13, Amsterdam) as generated by AI

INCLAVI

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Interviews with Experts and Passengers

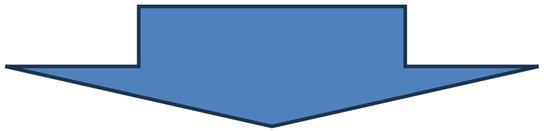
Preliminary results

Partners meeting - Amsterdam
Simone Moretti
Breda University of Applied Sciences
November 13th, 2023

Preliminary results

- Interviews with Aviation & travel industry experts
- Interviews with training and education experts
- Interviews with passengers with special assistance needs
- Interviews travelling with passengers with special assistance needs

Focus on the passengers' journey -> uncovering challenges and barriers -> training gaps



- Rich and valuable list of challenges, situations, examples, etc….

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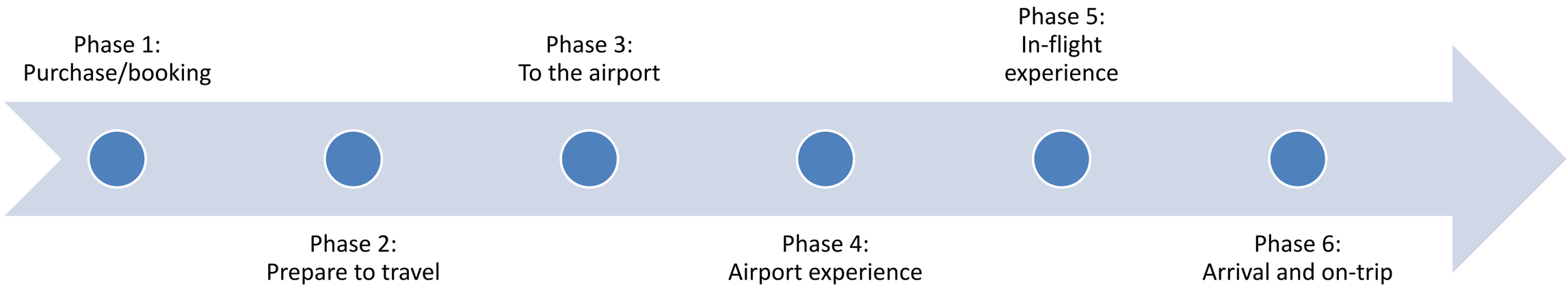
Passengers' journey



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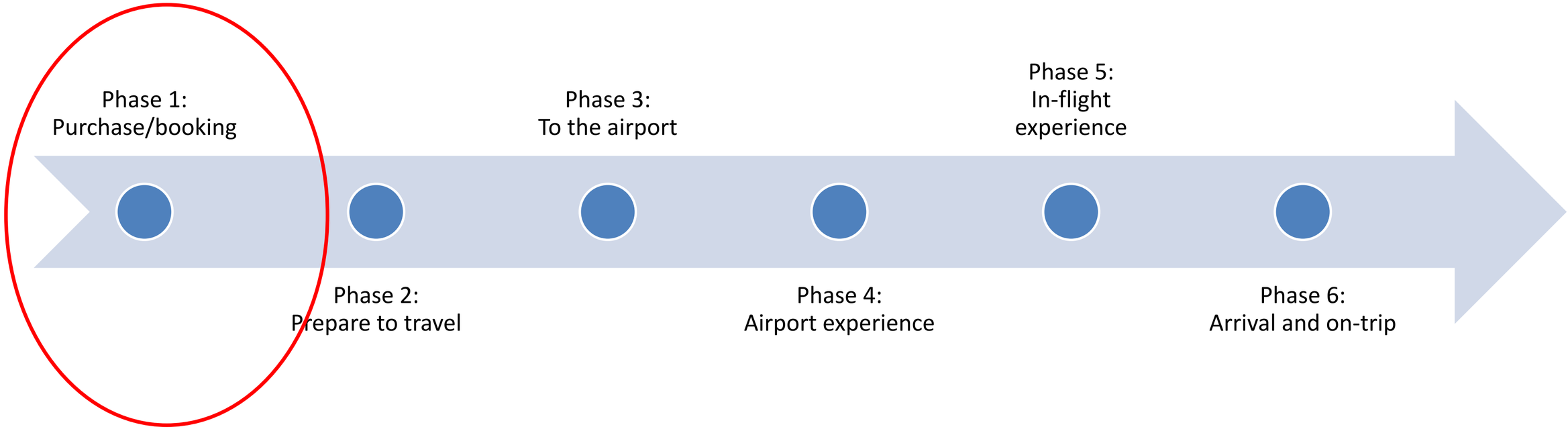
Phase 1: Purchase/booking



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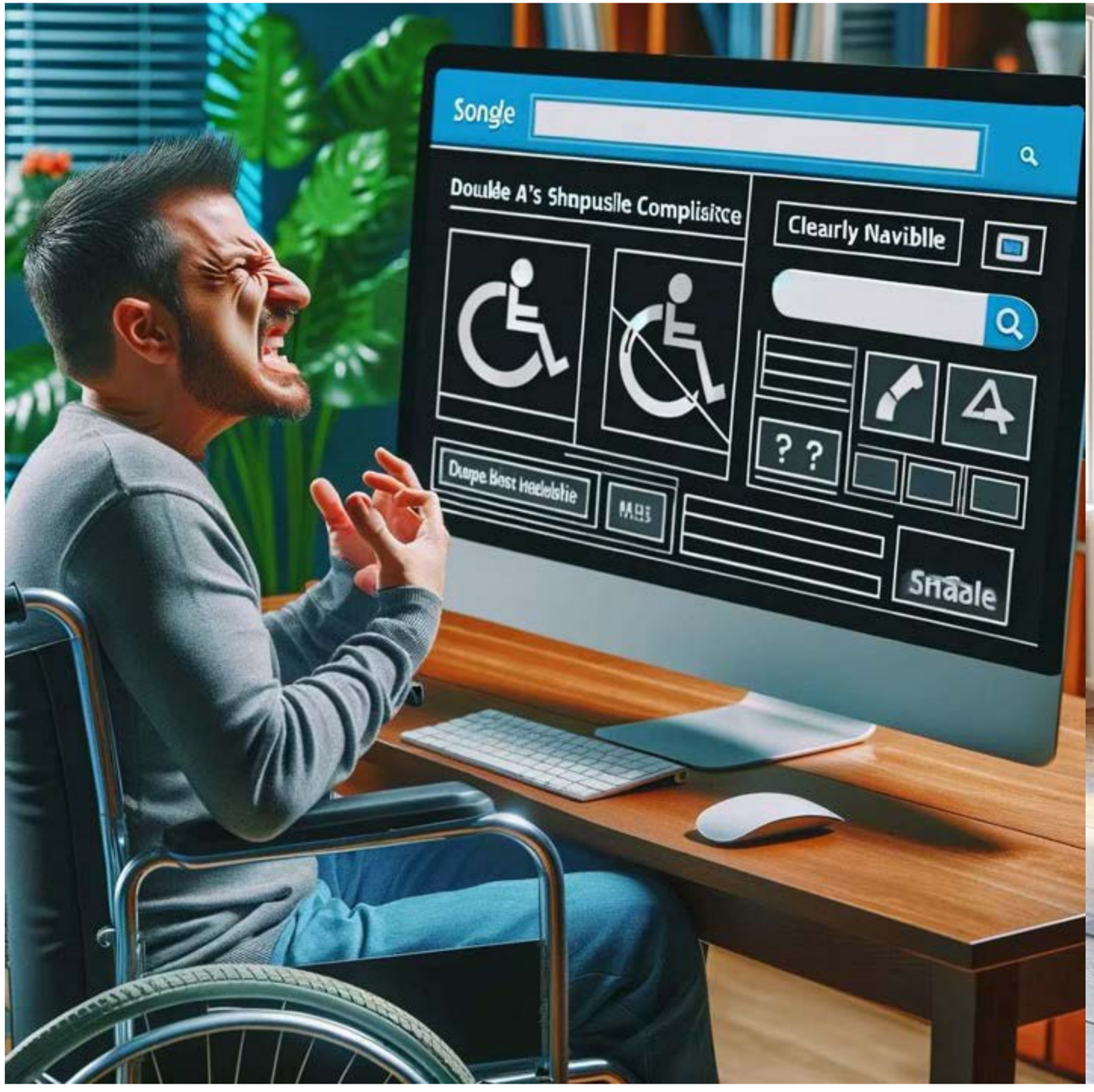
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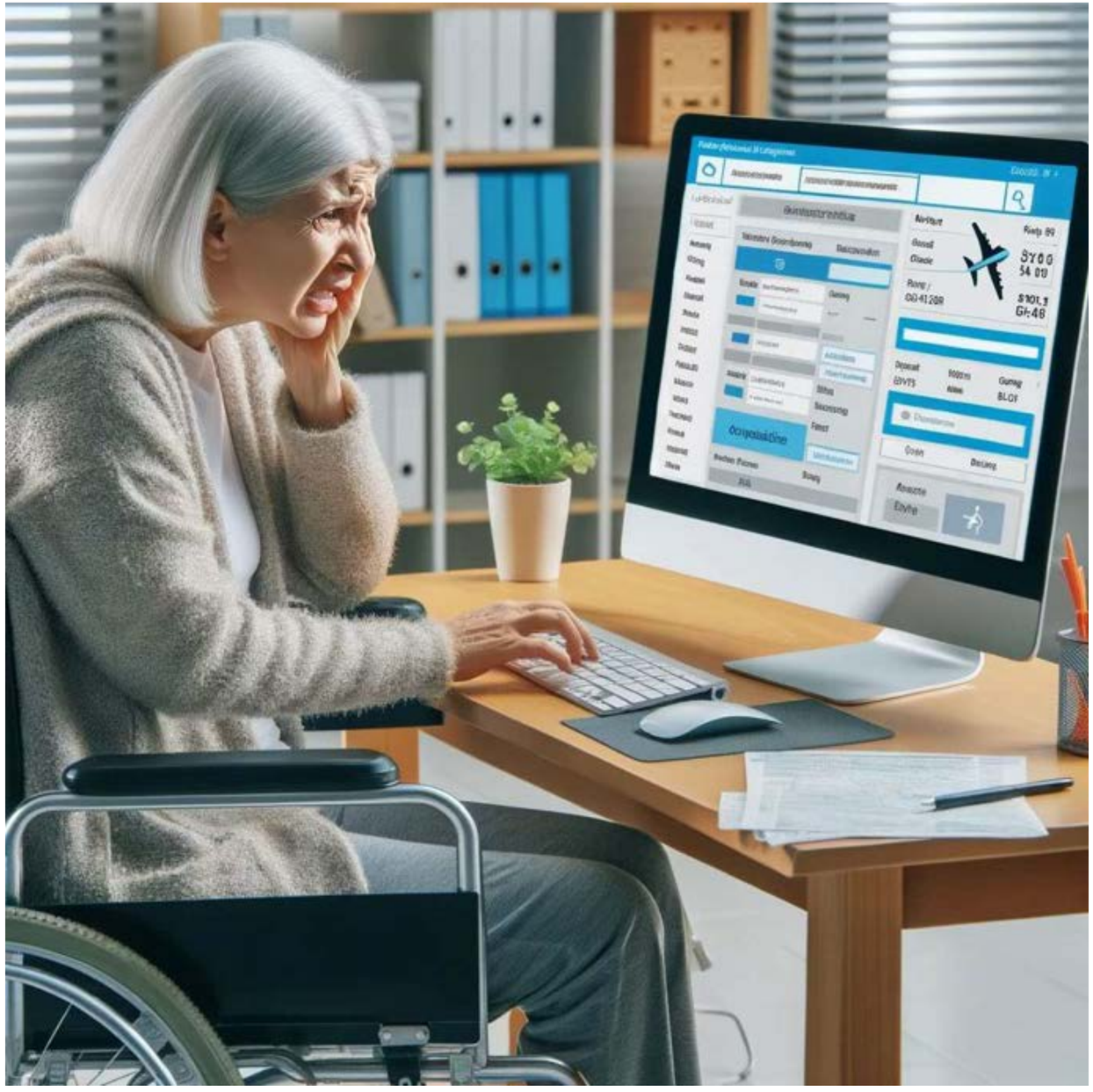

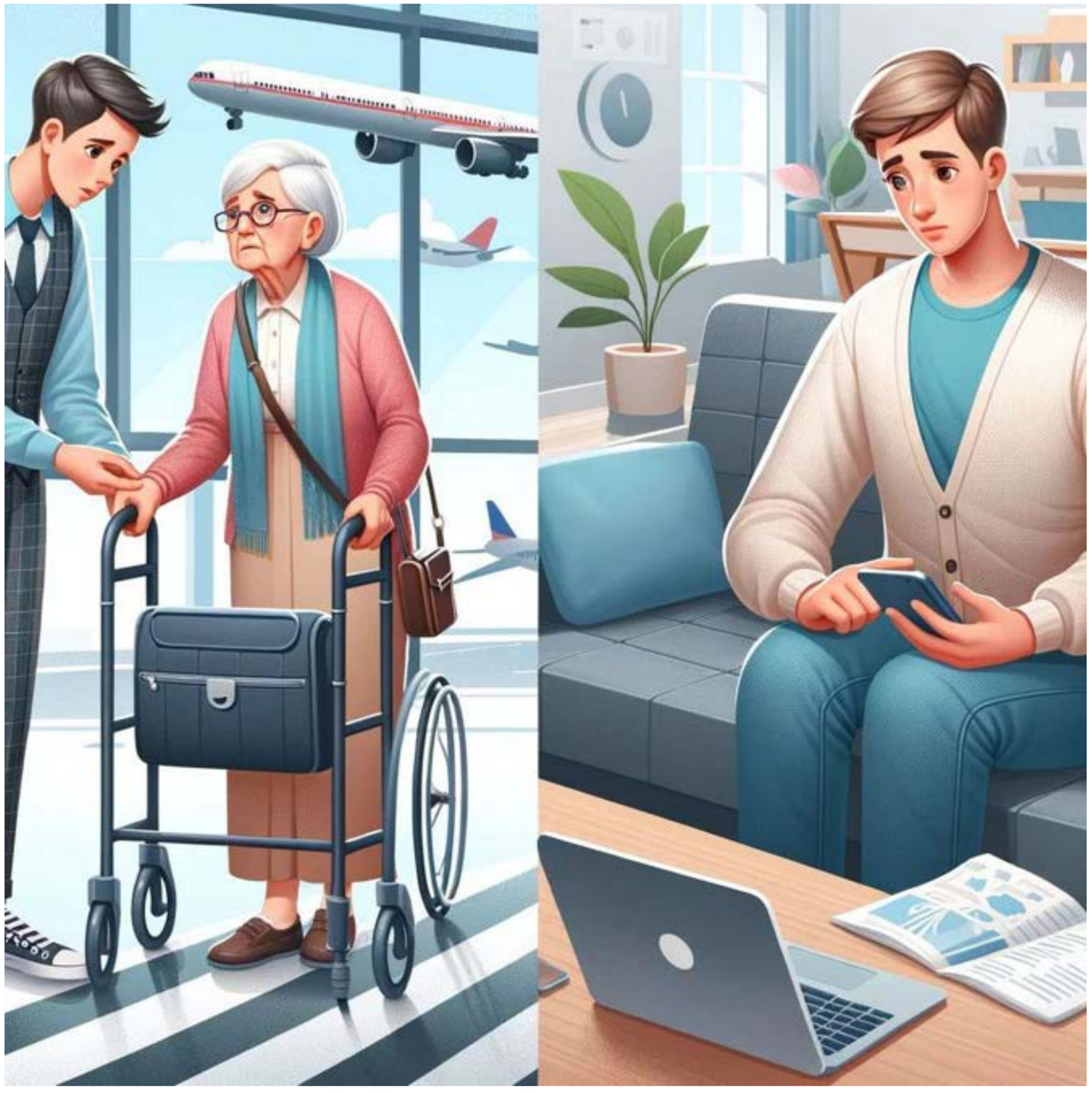

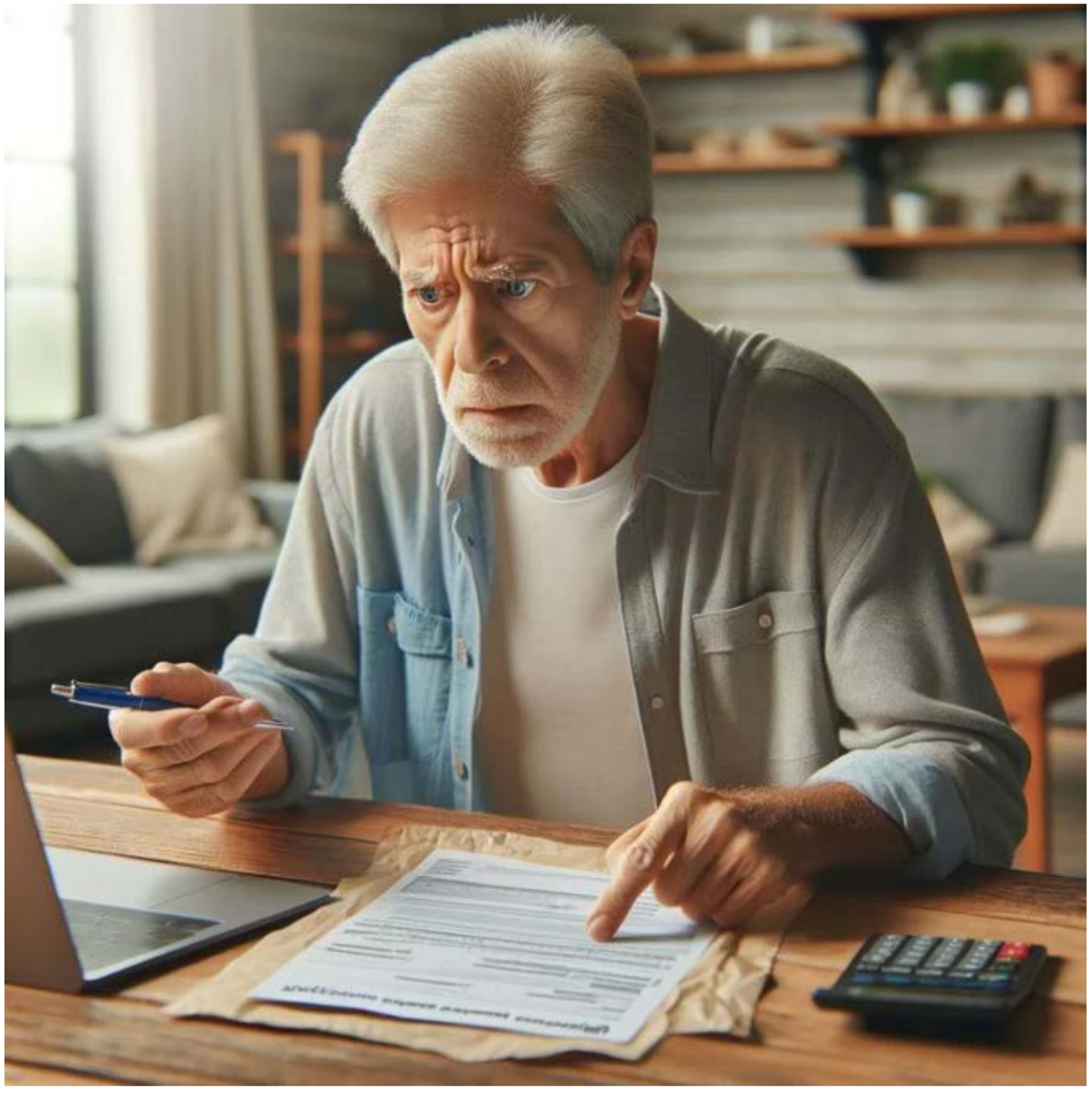


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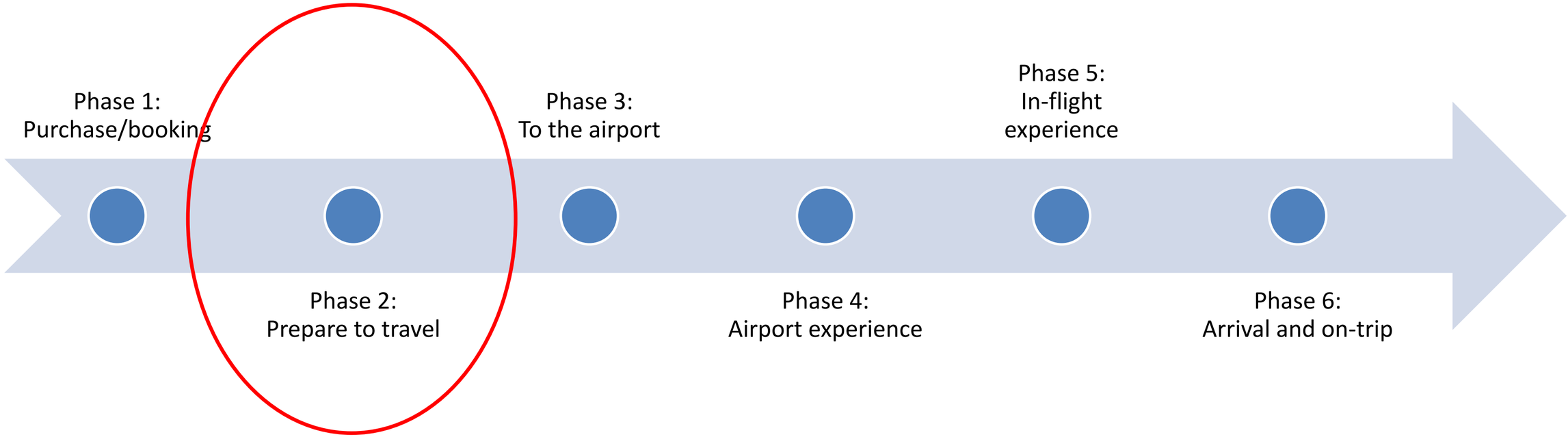
Phase 2: Prepare to travel



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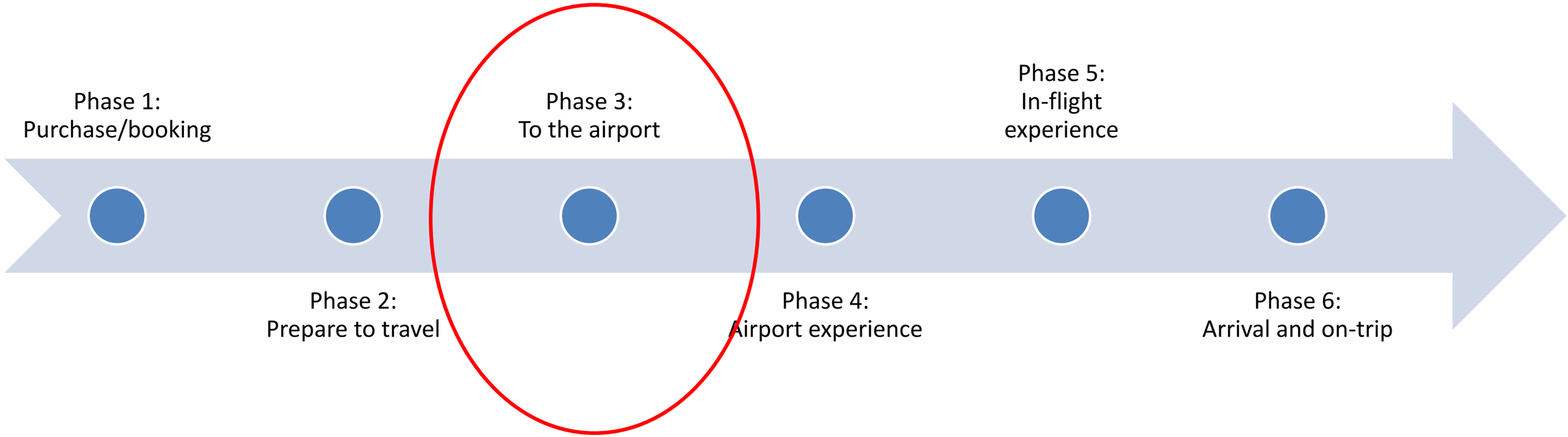
Phase 3: To the airport



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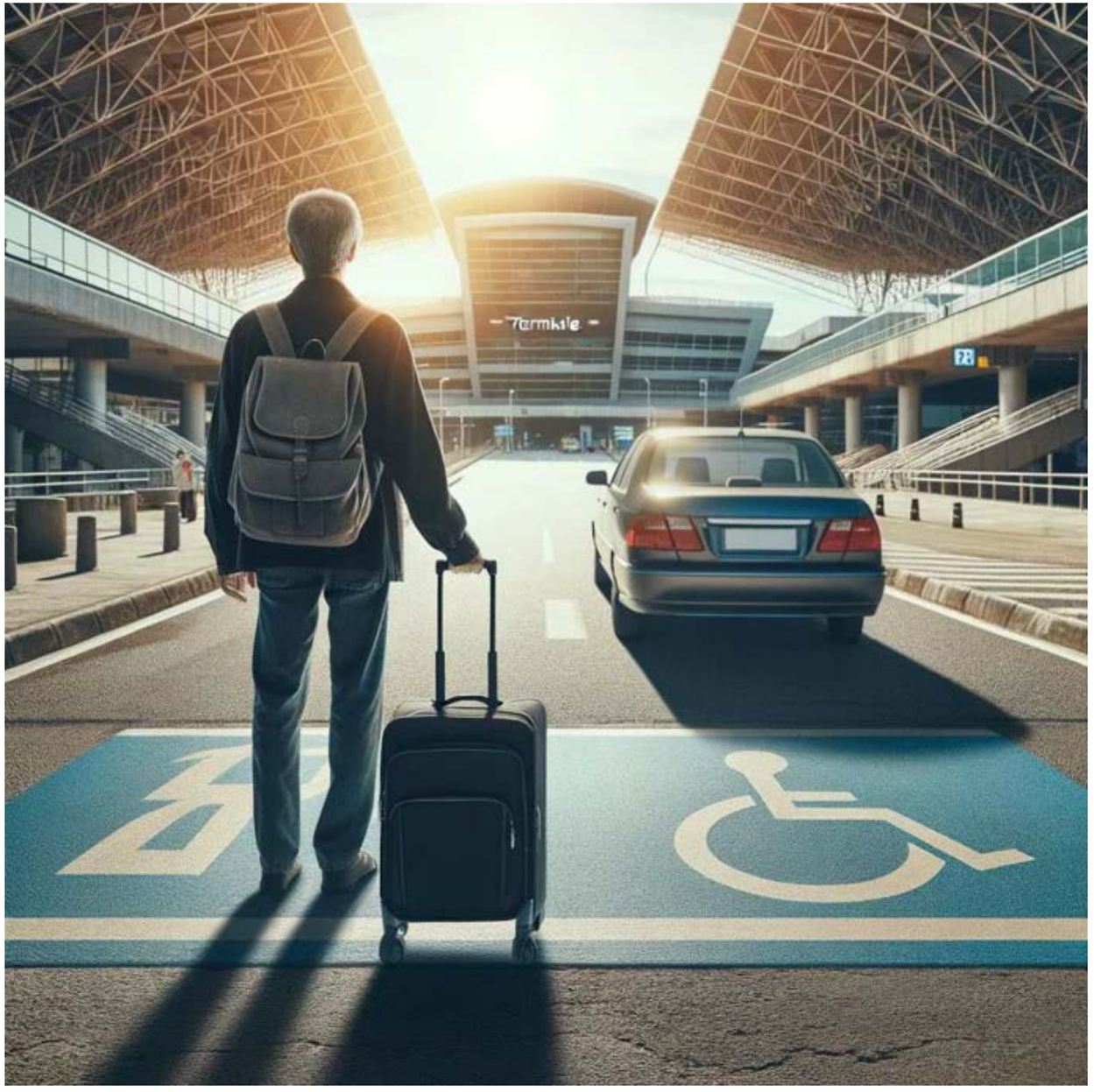
OUT OF SERVICE
HEEP


EXPENSSIVE


To Airport 22




Airport
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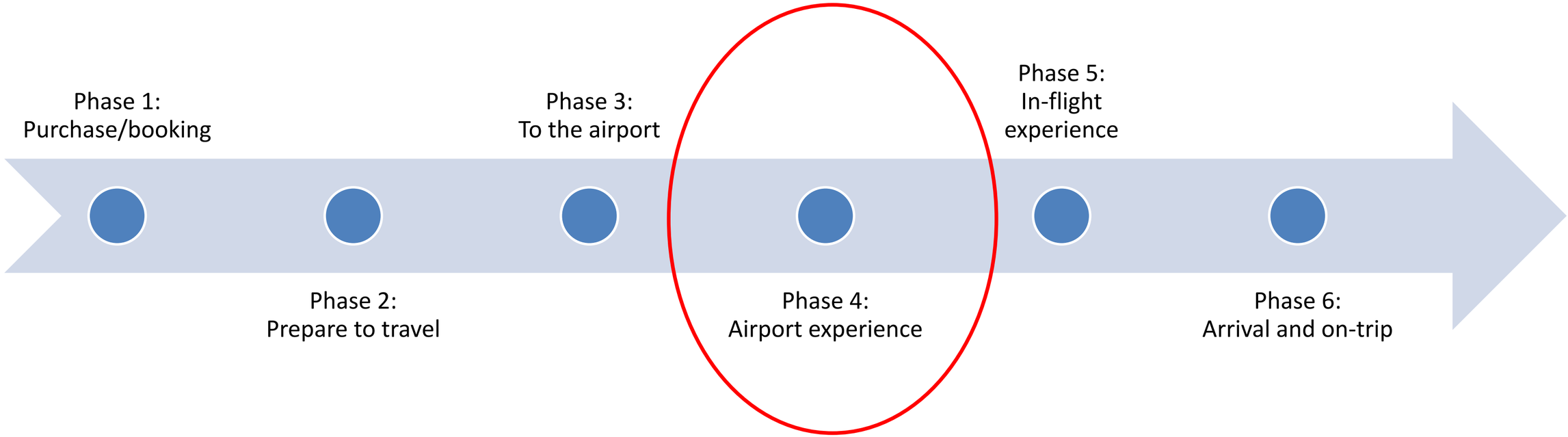
Airport

Phase 4: Airport Experience



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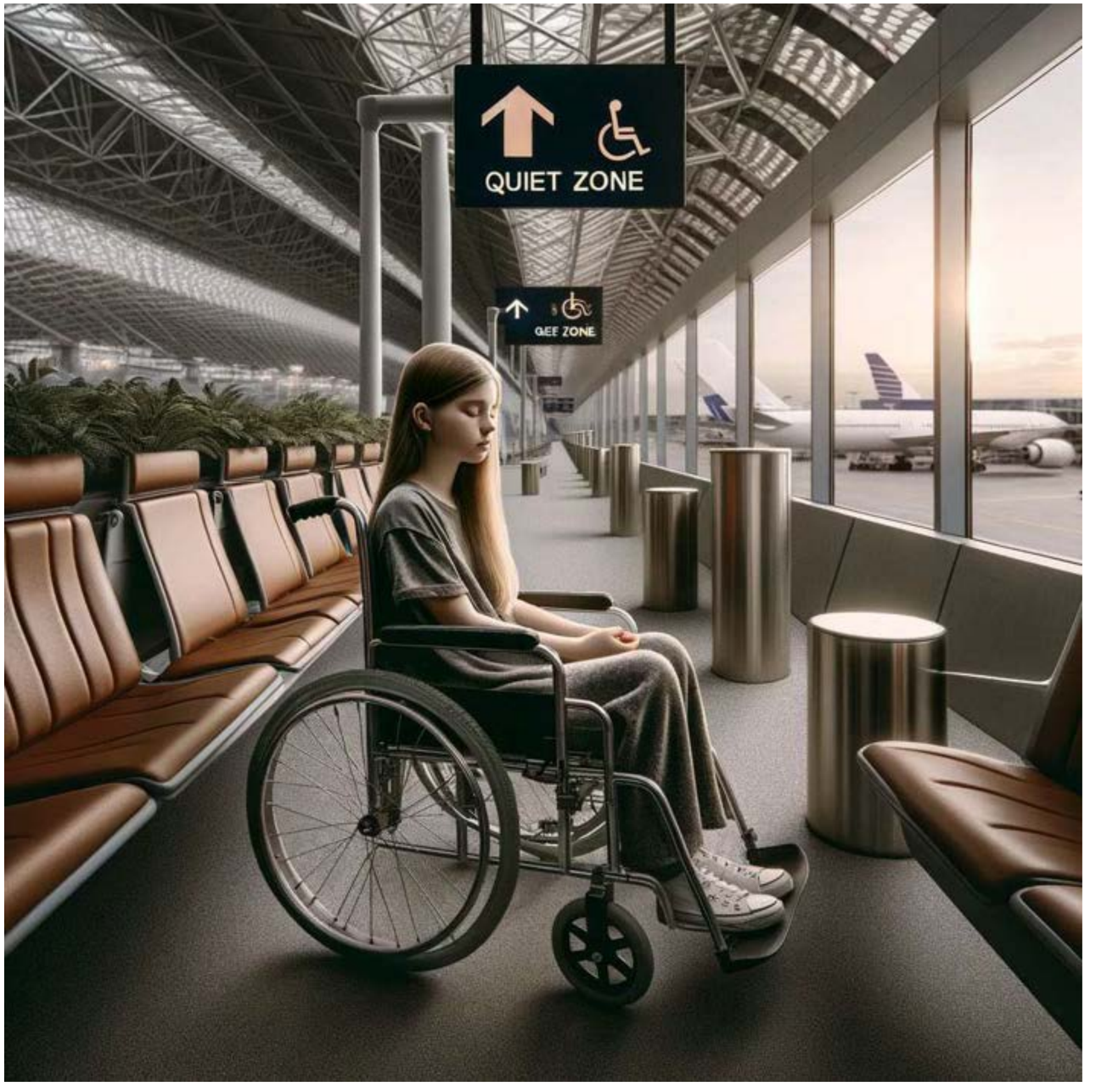
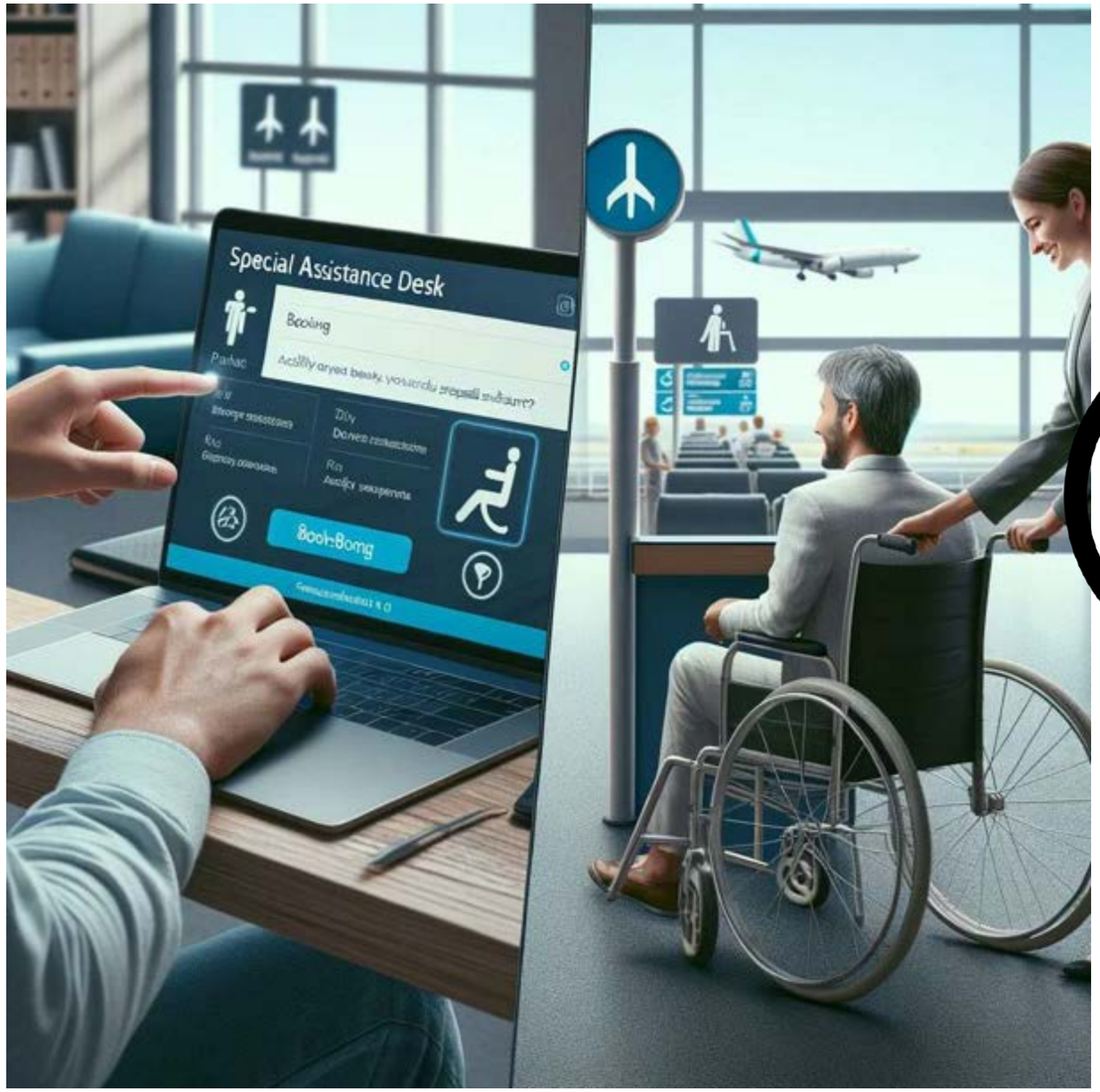

QUIET ZONE


Special Assistance Desk

VS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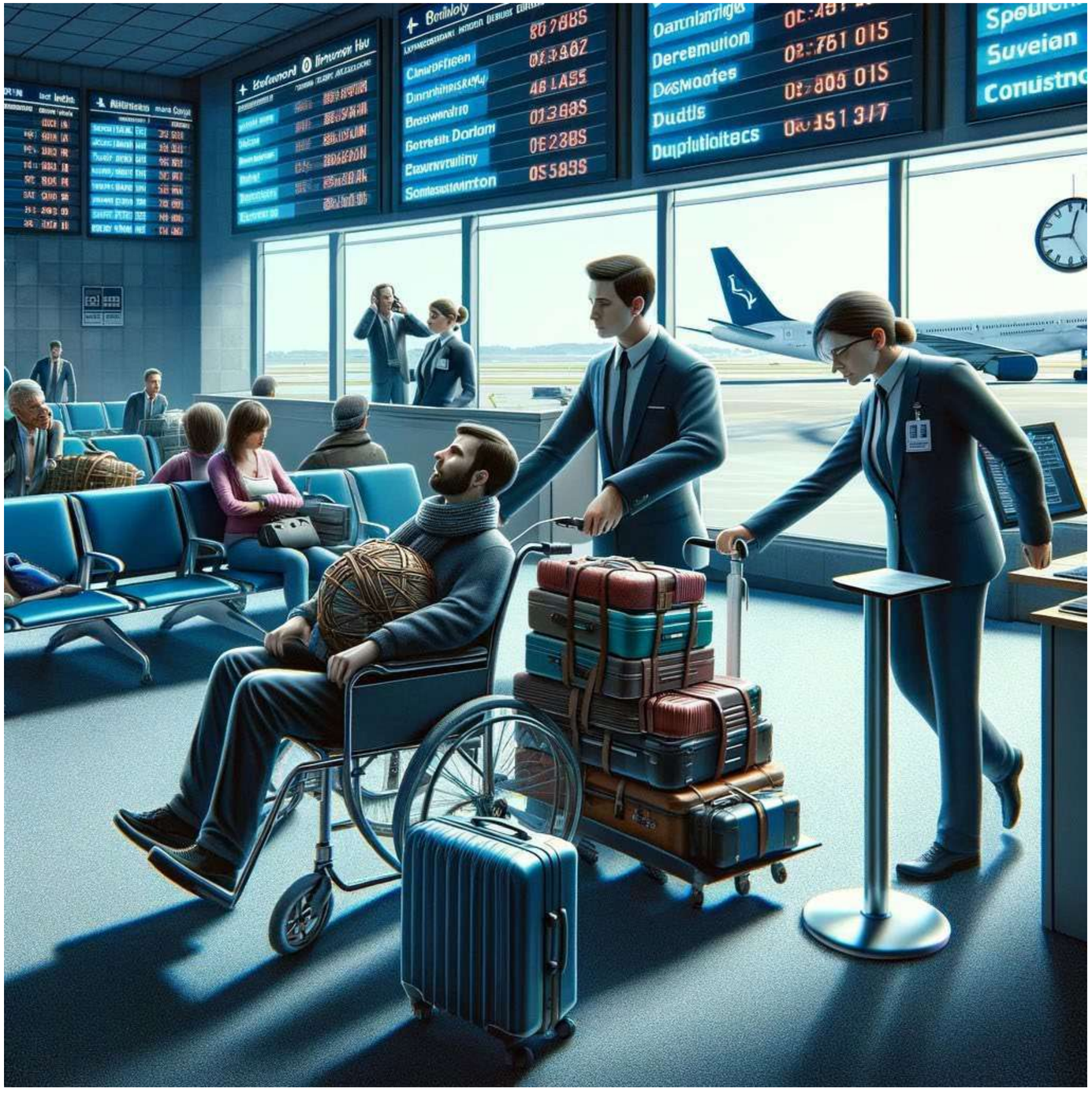


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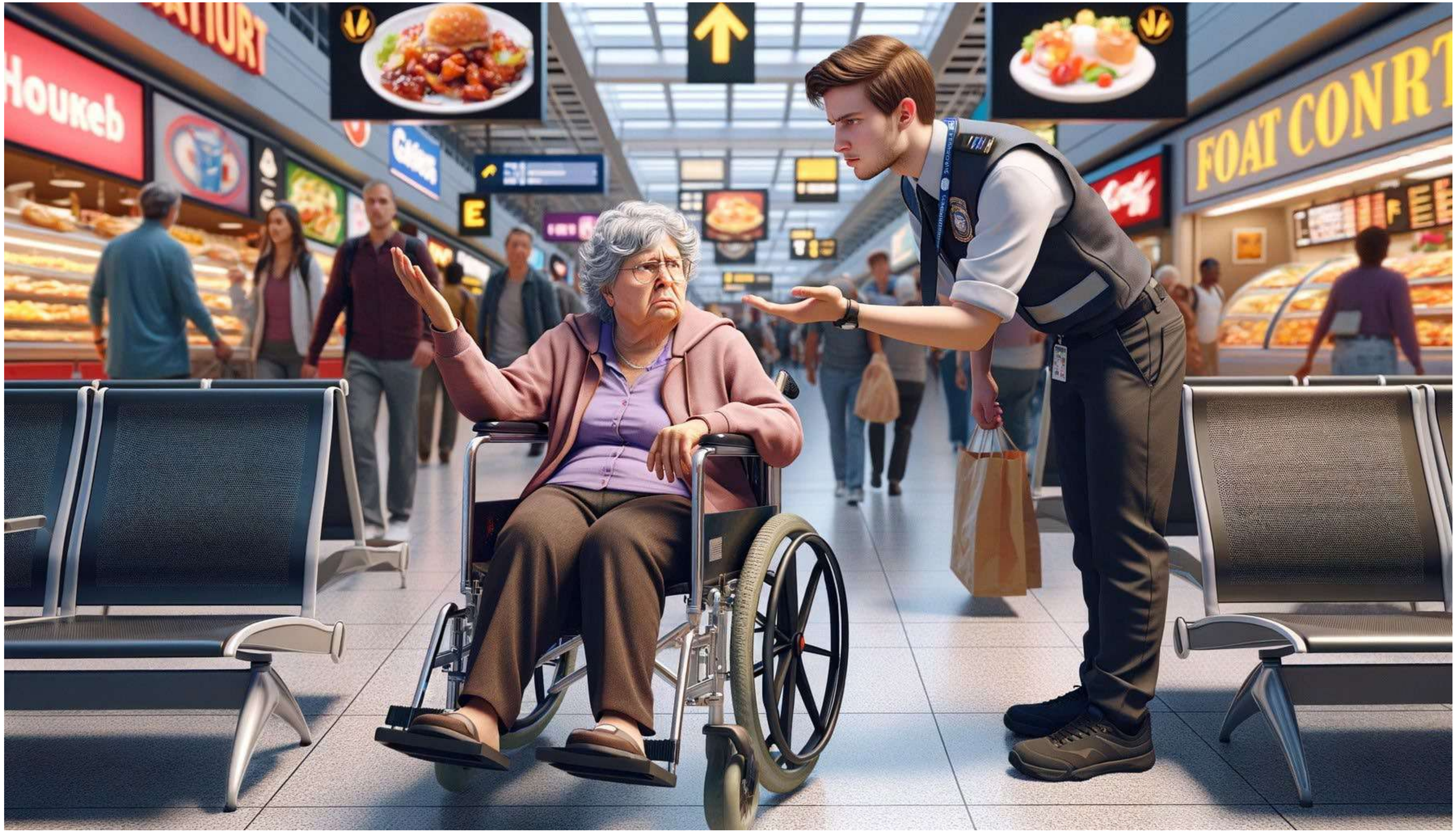
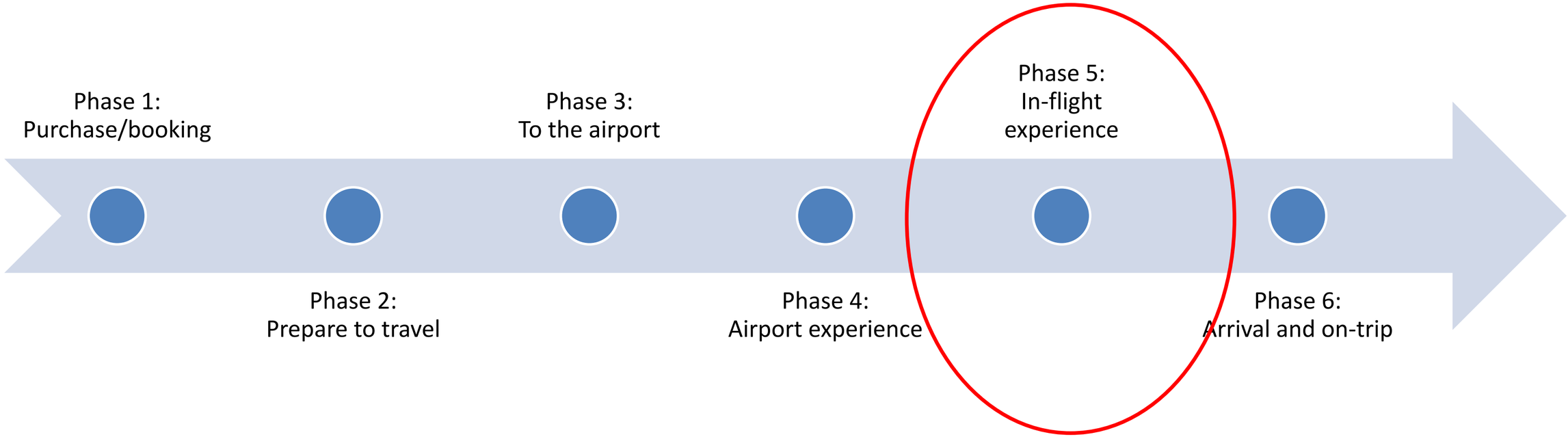
Special Assistance


FOAT CONRT


Shops & anet. and restacurints


PRM
AWAREESSS

Phase 5: In-flight



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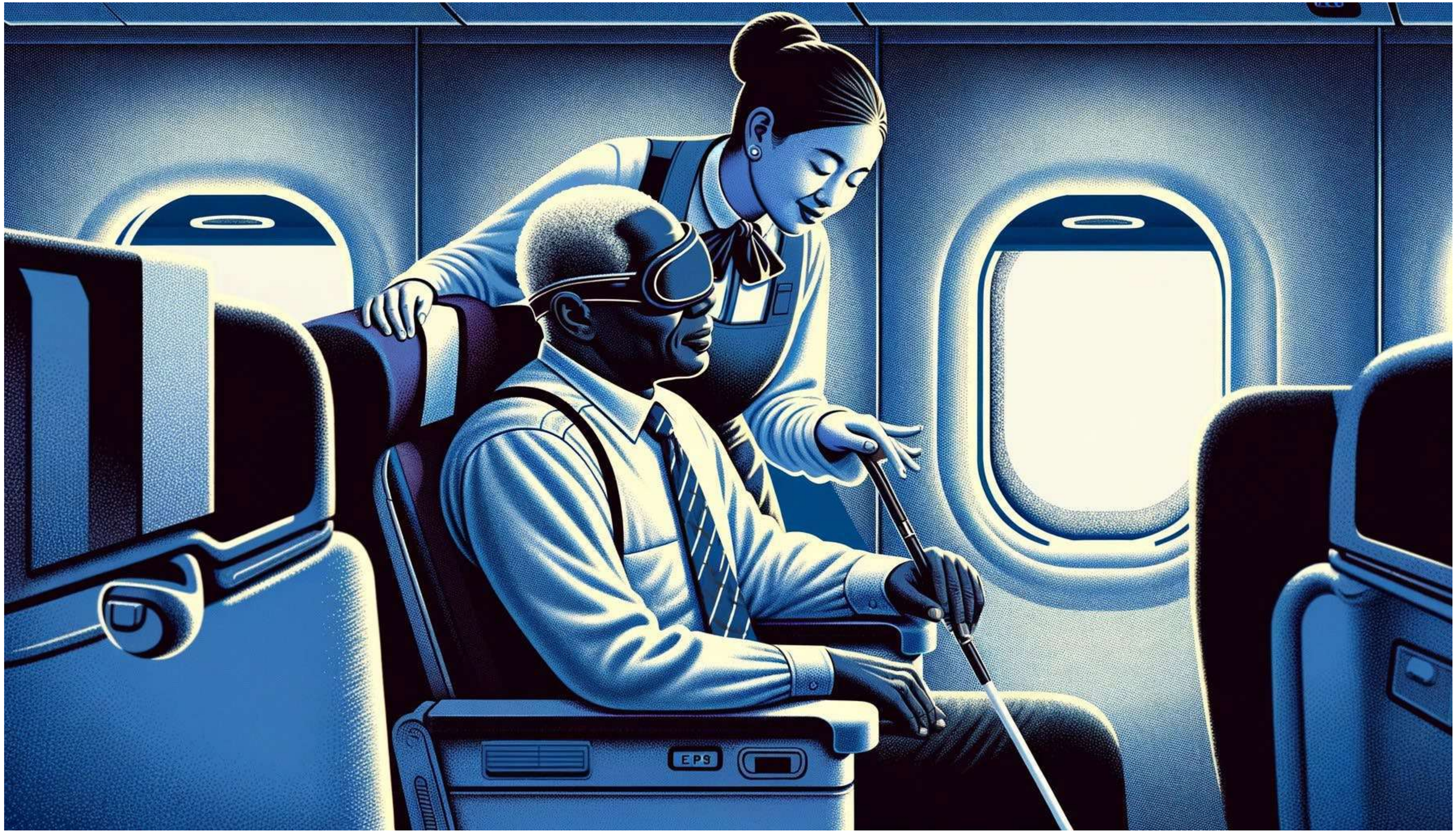
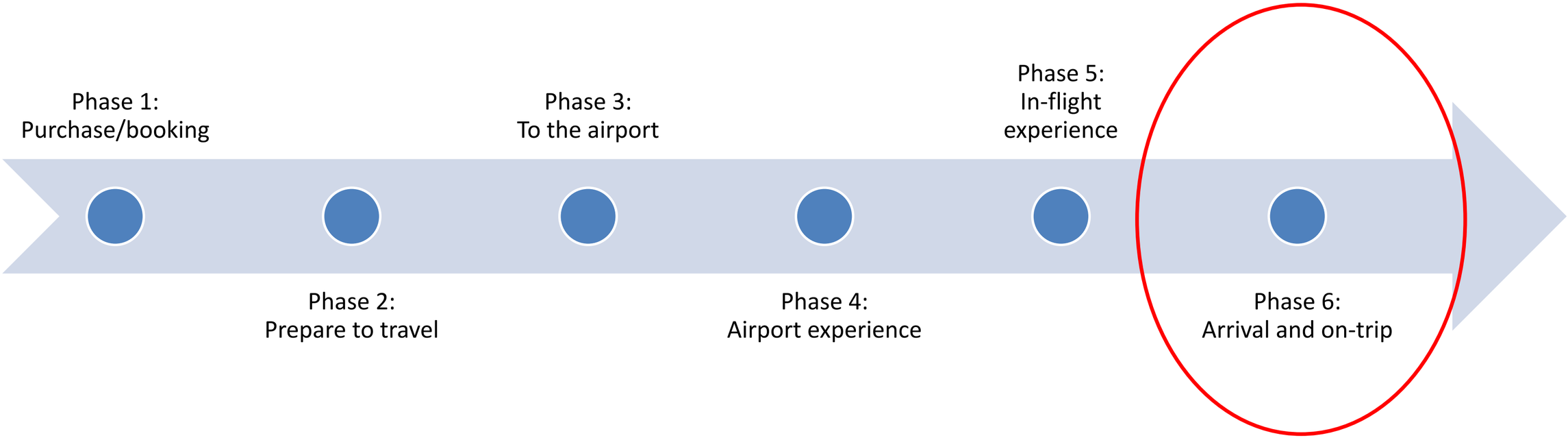

EPS

Phase 6: Arrival and on trip



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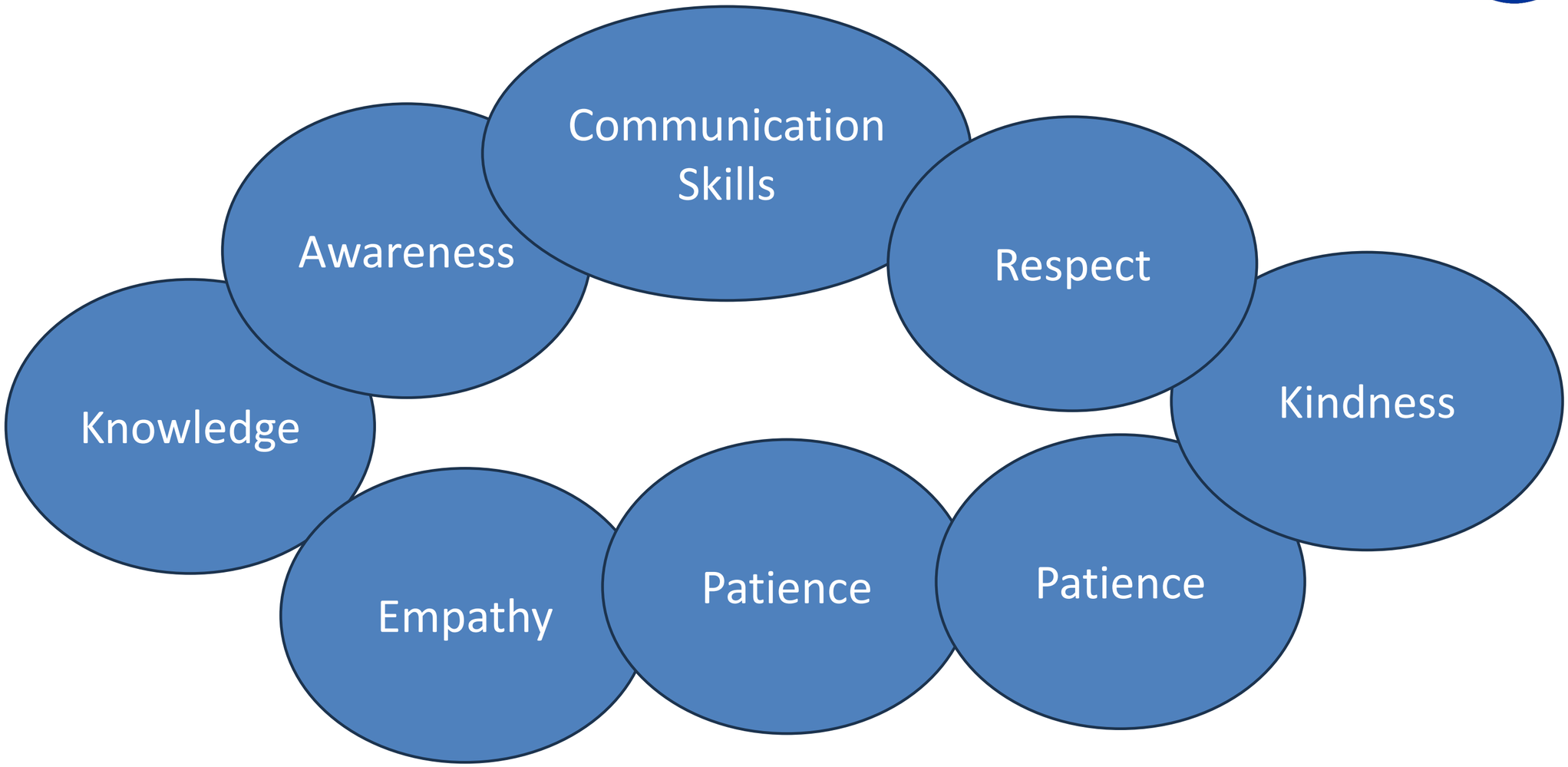
Key elements



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Enhancing Air Passenger (PSAR/PRM) Experience:

Defining domains for the online learning platform

Facilitators: Jos van der Sterren, Simone Moretti and Jelena Farkic

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Brainstorming

- Break into 2 groups.
- 10 mins per domain.
- Discuss key insights/suggestions based on empirical data within each domain.
- Share case studies or specific examples related to each domain.

- Domain 1: Skills Development
- Domain 2: Disability Awareness and Types of Reduced Mobility
- Domain 3: Airport Navigation and Assistance
- Domain 4: In-Flight Service and Comfort
- Domain 5: Customer Service Excellence and Continuous Improvement

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Domain 1: Skills development

- Legal and Ethical Considerations: Familiarizing with international and local regulations, as well as ethical practices in serving PRMs.
- Sensitivity Training: Developing empathy and understanding for passengers with diverse needs.
- Communication Strategies: Tailoring communication for different disability types.
- Communication Skills: Enhancing verbal and non-verbal communication for effective interaction.
- Emergency Response: Training for emergency situations involving passengers with reduced mobility.

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Domain 2: Disability Awareness and Types of Reduced Mobility

- Understanding Various Disabilities: Common disabilities affecting mobility (e.g., mobility impairments, visual and hearing impairments).

- Passenger Profiles: Creating awareness of different passenger profiles and their specific requirements (temporary disabilities, permanent disabilities, hidden disabilities, with service dogs etc)

- Assisting Techniques: Assisting passengers with various mobility aids and devices.

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Domain 3: Airport Navigation and Assistance

- Airport Layout and Facilities: Understanding the layout of airports and accessibility features.
- Arrival and Departure Procedures: Assisting passengers through check-in, security, and boarding processes.
- Passenger Escort Techniques: Safely guiding passengers through the airport, including embarking and disembarking the aircraft.

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Domain 4: In-Flight Service and Comfort

- **Aircraft Accessibility:** Understanding the design and features of accessible aircraft.
- **Seating Arrangements:** Allocating suitable seats and ensuring comfort for passengers with reduced mobility.
- **Onboard Assistance:** Providing support during boarding, in-flight, and disembarking.
- **Emergency Procedures:** Addressing emergency situations and evacuation for passengers with reduced mobility.

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Domain 5: Customer Service Excellence and Continuous Improvement

- Quality Customer Service: Focusing on exceeding customer expectations and ensuring a positive experience.
- Feedback and Conflict Resolution: Developing skills to handle feedback and resolve conflicts with passengers.
- Continuous Training and Development: Emphasizing the importance of ongoing learning and improvement.
- Case Studies and Best Practices: Analyzing real-life scenarios and industry best practices in serving passengers with reduced mobility.

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Feedback & Framework Development

- Each group presents their findings and recommendations for defined domains.
- Feedback and discussion
- Outline a preliminary framework for the online learning platform.
- Deadlines:

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Thank you!

Annex 3: ESCO descriptions of selected occupations[3]

1. Managers, professionals (categories 1 and 2 ESCO)

The first type of learners relates to **5 occupations** in management and professionals in the customer journey at tour operators, airports, and aviation:

a. 1324.1 **Airport directors** oversee a group of managers who lead or supervise a particular area of the airport, programme, or a project.
   Other Labels: aerodrome section director, aerodrome section manager, airport director, airport duty manager, airport environmental operations manager, airport manager, airport section director, airport security compliance manager, airport security manager, airside and expansions operations director, baggage programme director, customer relations and service director, station manager, terminal operations manager
b. 1324.2 **Air traffic managers** coordinate the planning of ground control, the maintenance of the aircrafts, and the handling of customers. They strive for the most efficient use of resources in directing the aircraft. They manage safety, quality, and risks in everyday work. They also plan and compare performance with other air navigation service providers.
   Other Labels: air navigation manager, air traffic control manager, air traffic manager, air traffic operations manager, air traffic operations supervisor, air traffic senior manager, air traffic supervisor, centre director for air traffic systems and operations.
c. 1439.7 **Tour operator managers** are in charge of managing employees and of activities within tour operators related to the organisation of package tours and other tourism services.
   Alternative Labels package tour manager, package tour operator manager, package tour services manager, tour operator's manager
d. 1420.4 **Shop manager** are responsible for activities and staff in specialised shops.
e. 2320.1.8 **Cabin Crew instructor** teach trainees all the matters regarding the operations in aircraft cabins. They teach, depending on the type of airplane, the operation carried out in the aircraft, the pre and post flight checks, the safety procedures, the service equipment, and client service procedures and formalities.
   Alternative Labels: cabin crew instructor, cabin crew trainer, cabin service instructor, flight attendant instructor, flight attendant trainer, flight service instructor, inflight service instructor, instructor of cabin crew, trainer of cabin crew
f. 2320.1.2 **Air traffic instructor** train people in all the matters regarding with the operations in air navigation services such as the management of flight traffic and the communication for navigation in aerodromes. They teach all the directives issued by air traffic control for the purpose of passing to trainees the sense of safety and expeditious flow of air traffic.
   Alternative Labels air traffic control instructor, air traffic control trainer, air traffic instructor, air traffic trainer, instructor of air traffic control

[3] Retrieved from https://esco.ec.europa.eu/en/classification/occupation?uri=http://data.europa.eu/esco/occupation/9967986b-570d-4db1-a179-aad7d1623ea8%22%20\l%20%22overlayspin

2. Technicians and associate Professionals (category 3 ESCO)

The second set of learners relates to **6 selected occupations**, technicians and associate professionals that are directly or indirectly connected to the customer journey of PRMs at distinct levels

a. 3153.2 **Aircraft pilots** control and navigate aircraft. They operate the mechanical and electrical systems of the aircraft and transport people, mail, and freight.
Alternative Labels aeroplane captain, aeroplane pilot, aircraft captain, aircraft first officer, aircraft pilot, aircraft second officer, cargo plane first officer, cargo plane pilot, helicopter chief pilot, helicopter pilot

b. 3154.3 **Flight operations officers** compile flight information to expedite movement of aircraft between and through airports. They compile aircraft dispatch data such as scheduled arrival and departure times at checkpoints and scheduled stops, amount of fuel needed for flight, and maximum allowable gross take-off and landing weight.
Alternative Labels air operations officer, air operations supervisor, aviation dispatch officer, director of airport operations, director of flight operations, flight operations officer, flight operations supervisor, manager of flight operations

c. 3119.3 **Aviation safety officers** plan and develop safety procedures for aviation companies. They study safety regulations and restrictions relative to aviation company operations. Hence, they direct activities of personnel in order to safeguard the application of safety measures in compliance with regulations.
Alternative Labels airfield safety officer, airfield safety supervisor, airport safety officer, airport safety supervisor, airport security supervisor, aviation safety officer, aviation security officer, aviation security supervisor, flight safety officer, flight safety supervisor, transportation security officer

d. 3154.1.3 **Airport operations officers** perform supervisory and administrative work monitoring operational activities on an assigned shift at a large airport. They ensure the safe take-off and landing of aircrafts
Alternative Labels aerodrome operations coordinator, aerodrome operations officer, aerodrome operations supervisor, airport director, airport operations chief, airport operations coordinator, airport operations manager, airport operations officer, airport operations supervisor, chief of airport operations, ground operations officer, head of airport operations, operations officer

e. 3351 **Customs and border inspectors** check persons and vehicles crossing national borders to administer and enforce relevant government rules and regulations. Tasks include (a) patrolling national borders and coastal waters to stop persons from illegally entering or leaving the country and from illegally importing or exporting currency or goods; (b) checking travel documents of persons crossing national borders to ensure that they have the necessary authorizations and certificates; (c) inspecting the luggage of persons crossing national borders to ensure that it conforms to government rules and regulations concerning import or export of goods

and currencies; (d) examining transport documents and freight of vehicles crossing national borders to ensure conformity with government rules and regulations concerning goods in transit and the import and export of goods, and to verify that necessary payments have been made; (e) detaining persons and seizing prohibited and undeclared goods found to be in violation of immigration and customs laws; (f) coordinating and cooperating with other agencies involved in law enforcement, deportation and prosecution; (g) performing related administrative tasks to record findings, transactions, violations and determinations; (h) when necessary, testifying in a court of law about the circumstances and results of investigations carried out.
Alternative labels: Border inspector, Customs inspector, Customs officer, Immigration officer, Passport checking officer

f. 3119.3 **Aviation safety officers** plan and develop safety procedures for aviation companies. They study safety regulations and restrictions relative to aviation company operations. Hence, they direct activities of personnel in order to safeguard the application of safety measures in compliance with regulations.
Alternative Labels airfield safety officer, airfield safety supervisor, airport safety officer, airport safety supervisor, airport security supervisor, aviation safety officer, aviation security officer, aviation security supervisor, flight safety officer, flight safety supervisor, transportation security officer

3. Clerical support workers, service, and sales workers (categories 4 and 5 ESCO)

The third subset of learners relates to 4 categories of workers that directly interact with PRM passengers in various stages of their customer journey.

a. 4221 t**ravel consultants and clerks** provide information about travel destinations, arrange travel itineraries, obtain travel and accommodation reservations, and register passengers at check-in and departure. Tasks include (a) obtaining information about the availability, cost and convenience of different types of transport and accommodation, ascertaining customers' requirements and advising them on travel arrangements; (b) providing information about local and regional attractions, sightseeing tours, restaurants, arts and entertainment, and providing maps and brochures; (c) preparing itineraries; (d) making and confirming reservations for travel, tours and accommodation; (e) issuing tickets, boarding passes and vouchers; (f) helping customers in obtaining necessary travel documents such as visas; (g) verifying travel documentation and registering passengers and luggage at check-in and departure; (h) preparing bills and receiving payments;
Examples of the occupations: Airline ticket agent, Check-in attendant, Ticket issuing clerk (travel), Travel agency clerk, Travel consultant, Travel desk clerk, Tourism information clerk

b. 5111 **Travel attendants and travel stewards** ensure the comfort and safety of passengers, serve meals and beverages, and render personal services, usually on aircraft and on-board ships. They may plan and coordinate housekeeping and social

activities on ships. Tasks include (a) greeting passengers entering aircraft or ships, checking tickets, or boarding passes, and directing passengers to their seats or berths;
(b) announcing, explaining and demonstrating safety and emergency procedures such as the use of oxygen masks, seat belts and life jackets; (c) assembling and serving pre-prepared meals and beverages; (d) selling duty-free and other goods; (e) taking care of general needs and comfort of passengers, answering inquiries, and keeping cabins clean and tidy; (f) directing and assisting passengers and following prescribed procedures in the event of an emergency, such as evacuating an aircraft following an emergency landing; (g) verifying that first aid kits and other emergency equipment are in working order; (h) administering first aid to passengers in distress; (i) attending pre-flight briefings concerning weather, altitudes, routes, emergency procedures, crew coordination, lengths of flights, food and beverage services offered, and numbers of passengers; (j) preparing passengers and aircraft for take-off and landing; (k) determining special assistance needs of passengers such as small children, the elderly or disabled persons.
Examples of the occupations: Cabin attendant, Flight attendant, Ship's steward

c. 5414.1.1 **Airport security officers** interact with passengers to ensure smooth transition between areas of the airport, compliant with safety regulations. They perform searches of passengers, their ID and baggage in order to ensure safety and to prevent illegal activity.
Alternative Labels air marshall, airport security agent, airport security guard, airport security officer, airport security professional, TSA agent

d. 522 **Shop salespersons** sell a range of goods and services directly to the public or on behalf of retail and wholesale establishments. They explain the functions and qualities of these goods and services, and may operate small shops or supervise the activities of shop sales assistants and cashiers. Tasks performed usually include: determining customer requirements and advising on product range, price, delivery, warranties and product use and care; demonstrating, explaining and selling goods and services to customers; accepting payment for good and services by a variety of payment methods, and preparing sales invoices; undertaking or assisting with the ongoing management of stock such as product inventories, and participating in stock takes; stacking and displaying goods for sale, and wrapping and packing goods sold; determining product mix, stock and price levels for goods to be sold; supervising and coordinating the activities of shop sales assistants, checkout operators and other workers in supermarkets and department stores.
Occupations in this group: 5221 Shopkeepers, 5222 Shop Supervisors, 5223 Shop Sales Assistants

4. Operators, elementary occupations (Categories 8 and 9 ESCO)

The last subset of learners relates to some staff that works in operations and elementary occupations, and connects to PRM passengers from this perspective.

a. 9333.1 **Airport baggage handlers** receive and return the luggage of passengers at airport terminals. They prepare and attach baggage claim checks, stack baggage on carts or conveyors and may return baggage to patrons on receipt of claim check.
Alternative Labels airport baggage agent, airport baggage handler, airport luggage handler, baggage agent, baggage handler, fleet service agent, fleet service clerk, freight and luggage handler, luggage handler, ramp agent, ramp attendant, ramp service agent

b. 8322.4 **Parking valets** provide assistance to clients by moving their vehicles to a specific parking location. They may also help with handling clients' luggage and provide information on parking rates. Parking valets maintain a friendly attitude towards their clients and follow company policies and procedures.
Alternative Labels car parker, parking valet

Annex 4: Curriculum structure per learner categories

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Inclavi Curriculum structure						Learner profiles																	
						1a managers and professionals				1b instructors and trainers			2 Technicians and associate professionals				3 Clerical support and sales workers					4 operators	
Domain of learning	Area of learning	Module number	Description of content / intended learning outcomes	EFQ level	nr of 1 ECTS (28 hours) micro-credential Module	3154.1.3 airport operations director	1439.7 tour operator manager	1420.4 shop manager	1324.1 airport director	2320.1.8 cabin crew instructor	2320.1.2 air traffic instructor	3153.2.3 flight instructor	3119.3 aviations safety officer	3351 customs and border inspectors	3154.3 flight operations officer	3153.2 aircrafts pilots	4221.1 ground steward/ ess	4221 travel consultant and clerks	5414.1.1 airport security officer	5111.1.1 flight attendant 5111.1.2 steward/ess	5223.6 shop assistant	8322.4 parking valet	9333.1 airport bagage handler
1: Skills and knowledge development	1.1 Legal and Ethical Considerations		Familiarizing with international and local regulations, and ethical practices in serving PRMs.																			
		1.1.1	Legal and ethical considerations basic	5	0,5																	
		1.1.2	Legal and ethical considerations advanced	6	0,5																	
	1.2 Sensitivity Training		Developing empathy/understanding for passengers with diverse needs.																			
		1.2.1	Sensitivity training basic	5	0,5																	
		1.2.2	Sensitivity training advanced	6	0,5																	
	1.3 Communication Strategies		Tailoring communication for different disability types.																			
		1.3.1	Consistent and clear communication with PRMs during their customer journey	7	0.5																	
		1.3.2	Signing, wayfinding, visual and non-visual information for PRMs in airports and airplanes	7	0.5																	
	1.4 Communication Skills		Enhancing verbal and non-verbal communication for effective interaction.																			
		1.4.1	Generic verbal and online communication with PRMs	5	0.5																	
		1.4.2	Generic non-verbal communication with PRMs	5	0.5																	
		1.4.3	Specific communication with hearing-impaired PRMs	6	0.5																	
		1.4.4	Specific communication with sight-impaired PRMs	6	0.5																	
		1.4.5	Specific communication with speech-impaired PRMs	6	0.5																	
		1.4.6	Specific communication with wheelchair and walking-devices dependent passengers	6	0.5																	
		1.4.7	Specific communication with PRMs with hidden disabilities	6	0.5																	
		1.4.8	Specific communication with PRMs with a service-dog	6	0.5																	
	1.5 Emergency Response																					
		1.5.1	Generic emergency and risk response procedures and consistent communication amongst stakeholders towards PRMs	5	0.5																	
		1.5.2	Specific emergencies procedures during stages of the customer journey towards PRMs advanced	6	0.5																	
2: Disability Awareness / Types of Mobility	2.1 Understanding Various Disabilities		Common disabilities affecting mobility (e.g., mobility impairments, visual and hearing impairments).																			
		2.1.1	Generic overview of types of mobility restrictions and possible consequences	5	0.5																	
		2.1.2	Mobility restrictions during stages of the PRM customer journey	6	0.5																	
	2.2 Passenger Profiles		Create awareness of passenger profiles and specific requirements (temporary disabilities, permanent disabilities, hidden disabilities, service dogs).																			
		2.2.1	Introduction to IATA passenger profiles typologies	5	0.5																	
		2.2.2	Typology of passenger profiles with non-PRM mobility constraints	5	0.5																	
	2.3 Assisting Techniques		Assisting passengers with various mobility aids and devices.																			
		2.3.1	Assisting passengers with wheelchairs, walking devices	5	0.5																	
		2.3.2	Assisting hearing-impaired passengers	5	0.5																	
		2.3.3	Assisting sight-impaired passengers	5	0.5																	
		2.3.4	Assisting speech-impaired passengers	5	0.5																	
		2.3.5	Assisting passengers with hidden disabilities	5	0.5																	
		2.3.6	Assisting passengers with a service dog	5	0.5																	
3: Airport Navigation and Assistance	3.1 Airport Layout and Facilities		Understanding the layout of airports and accessibility features.																			
		3.1.1	Strategic decisions in layout of airport and facilities to support PRMs	6	0.5																	
		3.1.2	Supporting PRMs in shopping, payment transactions	5	0.5																	
		3.1.3	Supporting PRMs in sanitary and other personal services	5	0.5																	
	3.2 Arrival and Departure Procedures		Assisting passengers through check-in, security, and boarding processes.																			
		3.2.1	Basic departure and arrival procedures	5	0.5																	
		3.2.2	Check-in, security, boarding procedures for categories of PRMs: wheelchair dependent passengers, sight-impaired, hearing-impaired, speech- impaired passengers	6	0.5																	
		3.2.3	Departure, security, check-out arrival procedures for categories of PRMs: wheelchair dependent passengers, sight-impaired, hearing-impaired, speech- impaired passengers	6	0.5																	
		3.2.4	Check-in, security, boarding procedures for special categories of PRMs: hidden disabilities, service dogs, other mobility constraints	6	0.5																	
		3.2.5	Departure, security, check-out arrival procedures for special categories of PRMs: hidden disabilities, service dogs, other mobility constraints	6	0.5																	
	3.3 Passenger Escort Techniques		Safely guiding passengers through the airport, including embarking, and disembarking the aircraft.																			
		3.3.1	Basic PRM passenger escort techniques	5	0.5																	
		3.3.2	Escorting techniques with wheelchair dependent passengers, sight-impaired, hearing-impaired, speech- impaired passengers	6	0.5																	
		3.3.3	Escorting techniques for passengers with hidden disabilities, with service dogs, or other mobility constraints	6	0.5																	
		3.3.4	Advanced escorting techniques in emergency situations	6	0.5																	

4: In-Flight Service and Comfort	4.1 Aircraft Accessibility		Understanding the design and features of accessible aircraft.			
		4.1.1	Basic PRM accessibility procedures for in-flight staff	5	0.5	
		4.1.2	Specific accessibility requirements for categories of PRMs: wheelchair dependent passengers, sight-impaired, hearing-impaired, speech- impaired passengers	6	0.5	
		4.1.3	Specific accessibility requirements for categories of PRMs: hidden disabilities, service dogs, other mobility constraints	6	0.5	
	4.2 Seating Arrangements		Allocating suitable seats and ensuring comfort for passengers with reduced mobility.			
		4.2.1	Basic seating procedures for PRMs in airlines	5	0.5	
		4.2.2	Specific seating arrangements for categories of PRMs: wheelchair dependent passengers, sight-impaired, hearing-impaired, speech- impaired passengers	6	0.5	
		4.2.3	Specific seating arrangements for categories of PRMs: hidden disabilities, service dogs, other mobility constraints	6	0.5	
	4.3 Onboard Assistance		Providing support during boarding, in-flight, and disembarking.			
		4.3.1	Basic on board procedures for PRMs in airlines	5	0.5	
		4.3.2	Specific on board assistance for categories of PRMs: wheelchair dependent passengers, sight-impaired, hearing-impaired, speech- impaired passengers	6	0.5	
		4.3.2	Specific on board assistance for categories of PRMs: hidden disabilities, service dogs, other mobility constraints	6	0.5	
	4.4 Emergency Procedures		Addressing emergency situations and evacuation for PRMs.			
		4.4.1	Basic emergency procedures for PRMs in airlines	5	0.5	
		4.4.2	Specific emergency procedures for categories of PRMs: wheelchair dependent passengers, sight-impaired, hearing-impaired, speech- impaired passengers	6	0.5	
		4.4.3	Specific emergency procedures for categories of PRMs: hidden disabilities, service dogs, other mobility constraints	6	0.5	
5: Customer Service Excellence	5.1 Quality Customer Service		Focusing on exceeding customer expectations and ensuring a positive experience.			
		5.1.1	The principles of customer service for PRMs	5	0.5	
		5.1.2	Specific customer service for PRMs: wheelchair dependent passengers, sight-impaired, hearing-impaired, speech- impaired passengers	6	0.5	
		5.1.3	Specific customer service for categories of PRMs: hidden disabilities, service dogs, other mobility constraints	6	0.5	
	5.2 Feedback / Conflict Resolution		Developing skills to manage feedback / resolve conflicts with passengers.			
		5.2.1	Basic PRM customer feedback: how to respond to complaints	5	0.5	
		5.2.2	Taking away stress and making PRMs feel comfortable	6	0.5	
		5.2.3	Conflict management and resolution	6	0.5	
6: ALL DOMAINS (P)	Analyzing real-life scenarios and industry best practices on PRM assistance.		Case Studies			
		6.1.1	Case study 1	6	0.5	
		6.1.2	Case study 2	6	0.5	
		6.1.3	Case study 3	6	0.5	
	6.2 interactive exercise					
		6.2.1	Interactive exercise 1	6	0.5	
		6.2.2	Interactive exercise 2	6	0.5	
		6.2.3	Interactive exercise 3	6	0.5	
	TOTAL MODULES OF ECTS DEVELOPED				29	

		nice to have / optional course
		Preferred to have / could be compulsory
		Need to have/ compulsory